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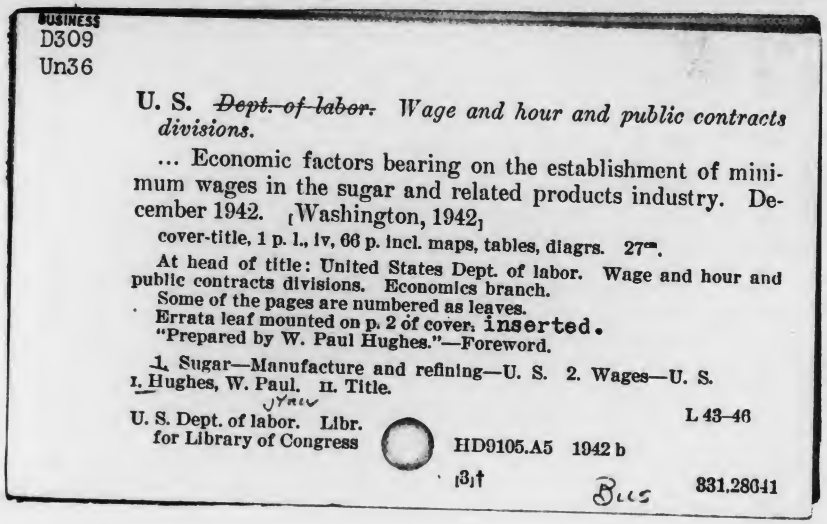

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U. S. ~~Dept. of labor.~~ *Wage and hour and public contracts divisions.*

... Economic factors bearing on the establishment of minimum wages in the sugar and related products industry. December 1942. [Washington, 1942]

cover-title, 1 p. l., iv, 66 p. incl. maps, tables, diagrs. 27cm.

At head of title: United States Dept. of labor. Wage and hour and public contracts divisions. Economics branch.

Some of the pages are numbered as leaves.

Errata leaf mounted on p. 2 of cover; inserted.

"Prepared by W. Paul Hughes."—Foreword.

1. Sugar—Manufacture and refining—U. S. 2. Wages—U. S. I. Hughes, W. Paul. II. Title.

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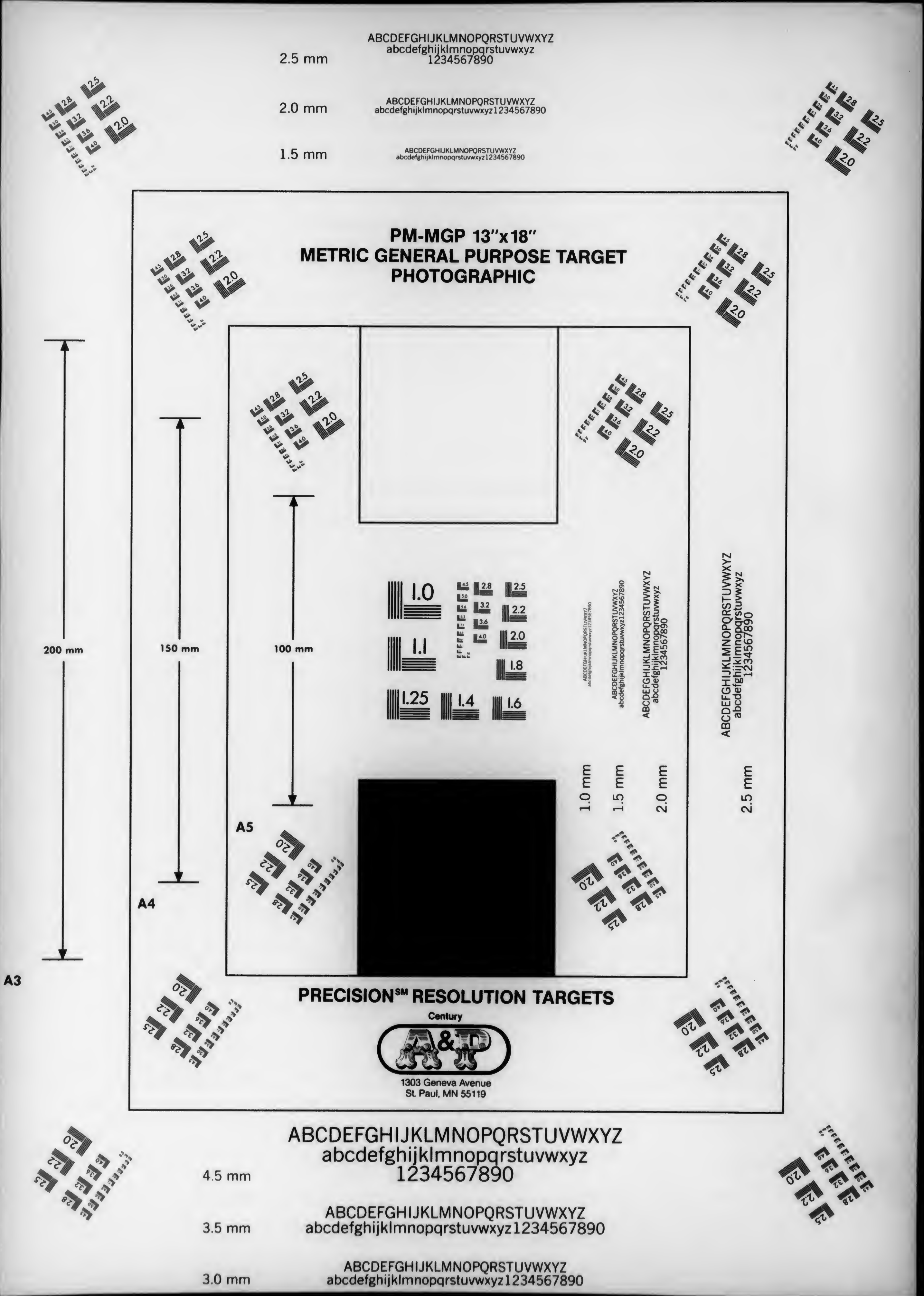

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UNITED STATES DEPARTMENT OF LABOR
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ECONOMIC FACTORS BEARING ON THE ESTABLISHMENT OF MINIMUM WAGES IN THE SUGAR AND RELATED PRODUCTS INDUSTRY

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FOREWORD

On October 5, 1942, the Administrator of the Wage and Hour Division, pursuant to the provisions of the Fair Labor Standards Act, appointed Industry Committee No. 50 for the sugar and related products industry. It is the statutory duty of this committee to investigate conditions in the industry and, with due regard to economic and competitive conditions, to recommend to the Administrator the highest minimum wage (not in excess of 40 cents an hour) which it determines will not substantially curtail employment in the industry. The statistical and other economic data given in the present report have been assembled for the purpose of assisting the industry committee, which will meet in New York City on January 5, 1942, in the performance of its statutory functions.

The report was prepared by W. Paul Hughes, under the general supervision of Verl E. Roberts, Acting Chief of the Industry Committee Studies Section.

Harry Weiss, Director
Economics Branch

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THE SUGAR AND RELATED PRODUCTS INDUSTRY

A. COVERAGE OF THE DEFINITION

1. Administrative Order No. 162

Administrative Order No. 162 defines the sugar and related products industry to mean:

> "The production of sugar, molasses, and syrups, of all types, made wholly or in part from maple sap, sugar beets, sugarcane, sorgo, or any derivitive therefrom, and the production of beet pulp, bagasse, lime cake, and related by-products; provided, however, that fountain syrups commonly and commercially so known shall not be included in this definition.
>
> "The production of any products covered under this definition shall be deemed to begin with the loading of the raw materials at the farm.
>
> "The definition of the sugar and related products industry covers all occupations in the industry which are necessary to the production of the products covered by the definition, including clerical, maintenance, shipping and selling occupations, provided, however, that in a wholesaling or selling department of a manufacturing establishment clerical, maintenance, shipping and selling employees, the greater part of whose work relates to the sale of articles which have been purchased for resale or of articles not covered by this definition, shall not be deemed to be covered by this definition, and provided, further, that where an employee covered by this definition is employed during the same workweek at two or more different minimum rates of pay, he shall be paid the highest of such rates for such workweek unless records concerning his employment are kept by his employer in accordance with applicable regulations of the Wage and Hour Division."

As defined in the Administrative Order the sugar and related products industry consists of four branches, the raw cane sugar branch, the cane sugar refining branch, the beet sugar branch and the syrup and molasses branch.

The products included within the industry definition are produced chiefly by establishments specializing in their manufacture, but certain of these products such as syrups and powdered sugar are also made as minor products of other establishments, particularly by food processors or wholesalers. The industry covers the manufacture of all products included within the scope of the definition, even though such manufacture is performed in establishments whose primary products are not a part of the industry.

The products covered by the definition include, but without limitation, raw cane sugar, refined cane sugar, beet sugar, maple sugar, maple syrup and molasses, liquid sugar, sorgo syrup, sugarcane syrup or molasses, beet molasses, mixed and blended syrups (including those consisting partly but not entirely of corn syrup), and such by-product syrups, molasses, beet pulp, lime cake, and bagasse as result from the manufacture of the above-mentioned products. It includes also the incidental processing of these products or by-products into feed or feed ingredients.

The production of sugar of milk, corn sugar, syrup or glucose, honey and saccharin is not included in the definition. Nor does the definition include the manufacture of flavored fountain or flavored beverage syrups, fruit syrups, cough syrups, flavoring extracts or similar syrups as such syrups are not ordinarily manufactured in establishments primarily engaged in processing sugarcane, sorgo, maple sap, sugar beets, or the direct products thereof. The further processing of bagasse into plastics, wall-board, paper or cellulose is also excluded.

2. Possible exemptions

Several sections of the Fair Labor Standards Act provide partial or complete exemptions from the minimum wage and overtime provisions in the case of certain operations carried on in the sugar and related products industry. For example, Section 13(a)(6) of the Act states that neither the minimum wage provisions nor the overtime provisions apply to "any employee employed in agriculture", thus exempting from the Act the manufacture of any of the products of this industry when performed by a farmer or on a farm as incident to the farming operations. It is not likely that this exemption would apply to any part of the industry except in connection with the manufacture of cane and sorgo syrup and maple sugar and syrup where made by a farmer from sugarcane, sorgo cane, or maple sap grown on his farm as a mere incident to his farming operations. 1/

Section 13(a)(10), which also provides a complete exemption from both the wage provisions and the hours provisions for employees who perform, within the area of production, certain enumerated operations on agricultural or horticultural commodities for market has been held not to apply to the

---

1/ In Bowie v. Gonzales, 117 F (2d)11 (C.C.A. 1st, 1941), it was held that raw sugar manufacturing operations were not incidental to farming and that the agricultural exemption therefore applied only to those persons engaged in planting, cultivating, and harvesting of sugarcane. In a later case, Calaf v. Gonzales, 127 F (2d)934 (C.C.A. 1st, 1942) it was decided that even when cane was grown by the employer of the persons transporting the cane to a sugar mill, the exemption would not apply to persons so engaged.

processing of sugarcane. 1/

A partial exemption from the overtime provisions of the Act has been granted under Section 7(b)(3) 2/ to that portion of the cane sugar processing and milling branch of the cane sugar industry which is located in Louisiana, including certain enumerated operations on bagasse. Under the 7(b)(3) exemption employees may be employed as long as 12 hours per day or 56 hours per week for not more than 14 weeks a year without paying them time and one-half for overtime. A decision is now pending on applications filed by Louisiana and Iowa factories for a similar exemption with respect to persons engaged in processing sorgo into sorgo syrup.

Another exemption is allowed for certain seasonal operations by Section 7(c) which completely exempts an employer from having to pay time and one-half for all overtime work performed during the active season. This exemption is granted by the Act with respect to employees of "an employer engaged in the processing of sugar beets, sugar beet molasses, sugarcane, or maple sap, into sugar (but not refined sugar) or into syrup." Thus, this exemption applies to most of the industry except those parts engaged in making sorgo syrup, in refining syrups, molasses, or raw cane sugar, in mixing and blending syrups and molasses, or in making sugar syrups.

1/ Ibid. The Court in the Bowie case stated that "the production of raw sugar is not the preparation of an agricultural commodity in its 'raw or natural state'. It is similar to extracting cider from apples, which was said to be processing and not intended by Congress to be within the provisions of Section 13(a)(10)." The Court cited the congressional debates on the Fair Labor Standards Act, 81 Cong. Rec. 7877-7878, in the course of which debates it was stated that in making cider from an apple, the apple, after being put through the first grinder, was no longer in its raw or natural state, that such treatment would be classified as processing, and that processing was not exempt under the terms of Section 13(a)(10).

2/ Section 7(b)(3) is applicable to employees engaged in industries which are found by the Administrator to be of a seasonal nature.

B. GENERAL INFORMATION CONCERNING THE INDUSTRY

1. Products and relative importance of the branches of the industry

There are four main branches of the industry: the raw cane sugar branch, which processes sugarcane into raw sugar; the refined cane sugar branch which engages in refining raw cane sugar; the beet sugar branch, which processes sugar beets into refined beet sugar; and the syrup and molasses branch, which processes sugarcane, sorgo, or maple sap into syrup, makes maple sugar, and mixes or blends syrups made in whole or part from sugarcane, sorgo or maple sap.

The most important in terms of the normal volume of employment and the value of products is the refined cane sugar branch, while the beet sugar branch, although ranking second with respect to employment and value of products, has the highest value added by manufacture (Table 1). The raw cane sugar branch has more known establishments than any other branch but is third in terms of employment, value of products, and value added by manufacture. The smallest branch in all respects except the number of establishments is the syrup and molasses branch.

2. Processes

The operations of a typical raw sugar factory involve transporting the sugarcane from the fields to the sugar factory, which may be done by railroad, trucks, carts, cranes, or flumes, depending on local requirements and facilities. At the factory the cane is cut, crushed, and pressed between huge rollers which squeeze it nearly dry, the juice being diverted into a tank. There the juice is clarified by adding and precipitating lime which, as it settles to the bottom of the tank, carries down with it some of the impurities. After being run through a filter the juice is boiled until it is a very thick syrup and a mass of crystals known as a massecuite. 1/ The massecuite is placed in a perforated cylinder, known as a centrifugal, which is revolved rapidly with the result that most of the syrup adhering to the outside of the sugar crystals is thrown out through the perforations and the crystals are retained in the centrifugal. This raw sugar, which is the finished product insofar as the raw sugar mill is involved, is then bagged for shipment to a cane sugar refinery unless, as in some cases, refining operations are carried on by the raw sugar mill as an adjunct to its production of raw sugar.

The processing of sugarcane into raw sugar follows immediately after the cane is harvested, which is usually from October to January in Louisiana, from January to March in Florida, and in Hawaii is year-round except for an autumn shutdown for repairs.

Some raw sugar factories, in order to obtain a higher price for their product, attempt to make it similar to refined sugar by bleaching or by washing it.

1/ Massecuite means "cooked mass".

Table 1. Sugar and related products industry: Number of establishments, employment, salaries and wages paid, cost of materials, value of products, and value added by manufacture, by branch, as reported by the Census of Manufactures, 1939

Branch	Number of establishments	Employment a/	Salaries and wages paid	Cost of materials b/	Value of products	Value added by manufacture c/
Cane sugar refining	27	16,828	$21,421,044	$226,287,960	$389,869,764	$55,993,137
Beet sugar	85	12,324	16,408,052	84,951,372	134,396,017	49,444,645
Raw cane sugar	113	10,094	7,441,140	53,499,656	82,777,885	29,278,229
Mainland	78	5,294	3,731,239	23,017,224	33,526,898	10,509,674
Hawaii	35	4,800	3,709,901	30,482,432	49,250,987	18,768,555
Syrup and molasses d/	65	1,154	1,583,439	14,036,172	17,180,204	3,144,032
Total for all branches	290	40,400	46,844,675	486,363,827	624,223,870	137,860,043

Source: United States Department of Commerce, Bureau of the Census, Census of Manufactures, 1939.

a/ Includes wage and salary earners and the officers of corporations.

b/ Includes cost of materials, supplies, containers, fuel, purchased electric energy and contract work.

c/ Value of products less cost of materials, supplies, containers, fuel, purchased electric energy, and contract work.

d/ Includes data for only those establishments which in 1939 reported to the Census Bureau that the principal products manufactured were either mixed and blended syrups and molasses, sorgo syrup, or maple syrup. Establishments whose principal products were maple sugar or sugarcane syrup are not included.

The object of the operatings performed by a cane sugar refinery is to remove from the raw sugar the moisture, molasses, and impurities usually contained therein. The first step after the raw sugar has been received at the refinery, weighed and tested, involves mixing the sugar with a sweetened water, forming a grainy syrup known as magma, and placing it in a centrifugal and revolving it. A spray of water is directed against the sugar while the machine is in operation, washing the sugar and leaving it white in color and almost ninety-nine percent pure. The sugar is then removed from the centrifugal and melted by steam and hot water. Lime is added to correct any acidity and the melted sugar is filtered, which removes practically all soluble impurities and any remaining color. The sugar, still in liquid form, is then placed in a vacuum pan where it is boiled to remove water. After almost complete crystallization has taken place, the crystals and residual syrup are again placed in a centrifugal where the syrup is thrown off leaving the white sugar crystals on the wall of the machine. The next operation involves drying, which is done by subjecting the crystals to a current of hot air. The crystals are then sorted by size and packaged. Other forms of sugar are made by pressing it into cubes or into loaves and cutting them to the desired size. All of the operations are largely mechanized.

Sugar beets are hauled, usually by the growers, either directly to a sugar beet factory or to receiving stations from which they are transported, sometimes by employees of the factory, to the factory yard. There they are unloaded into huge piles from which they are transferred into the mill, washed, sliced into chips and placed in diffusion tanks. In the tanks hot water soaks the sugar out of the beets. This juice is purified chemically by treating it with lime and carbon dioxide, which renders many of the impurities insoluble, is then filtered and is boiled until a massecuite is formed. The massecuite, as in the making of raw cane sugar, is placed in a centrifugal where the molasses is spun off, leaving the sugar crystals white and ready to be dried and packaged or sacked and stored in the warehouse. During the off-season the factory itself may be used as a warehouse.

In sugarcane syrup and sorgo syrup factories the operations are very much like those in raw cane sugar factories except that the syrup is not boiled down into sugar. In the maple sugar and maple syrup factories maple sap is evaporated until the water content is only about thirty-five percent of the weight of the syrup, at which point the evaporating process is stopped and the syrup filtered and bottled for market. If maple sugar is to be made the syrup is boiled until the sugar has crystallized to such an extent that it will harden upon cooling. These operations are not necessarily all performed in the same establishment for part of the evaporation may be done in plants other than those in which the finished product is made, as is true also of sugarcane syrup and sorgo syrup.

Syrup mixing and blending establishments combine various grades and types of syrup (including corn syrup) and molasses to obtain a product of a particular character with respect to color, flavor, consistency or baking qualities. The mixing operations are simple and basically similar in all plants, the main difference being that in small plants the operations may be largely manual, whereas in large plants the operations are usually performed by machines which clean, filter, blend, and bottle or can the syrup or molasses. Many mixing and blending establishments also use sugars as their

raw materials, mixing the sugars in the desired proportion, as, for example, 85 percent cane sugar and 15 percent maple sugar, and then adding water until the proper density is obtained.

3. Number and location of establishments

The raw cane sugar branch is located in the sugarcane growing areas, with two establishments in Florida, seventy-seven in Louisiana (Figure 1), and thirty-five in Hawaii. Although Louisiana has more establishments than the other two raw sugar producing areas it ranks second to Hawaii in the value and quantity of sugar produced, Florida being third. The cane sugar refineries are located mainly along the Atlantic and Gulf coasts (Figure 2), twenty-two of the twenty-six refineries being located there; nine of the twenty-two refineries are in Louisiana. Of the remaining four refineries two are on the Pacific coast and two are in midwestern cities. The refineries located on the Atlantic and Pacific coasts are large while most of those in Louisiana are comparatively small, as are the two in the midwest.

The 83 beet sugar factories in operation in 1941, like raw cane sugar factories, are located in the areas where the raw materials are grown. They are principally located in western and midwestern small cities, and, except for those in Michigan and northern Ohio, are mostly west of the Mississippi River (Figure 2).

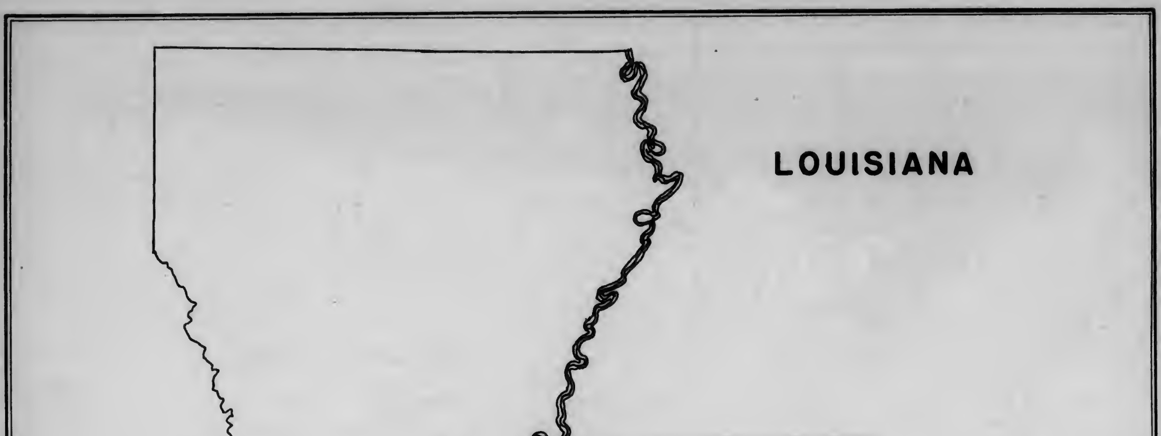
The approximately 100[1/] syrup and molasses establishments are widely distributed over the United States with maple syrup and maple sugar factories being concentrated in New England, sugarcane syrup factories in the southern states, sorgo syrup factories in the middlewest and syrup and molasses mixing and blending establishments distributed without any noticeable geographic concentration.

4. Integration and concentration

All the manufacturers of raw cane sugar in Florida and Hawaii also engage in the growing of sugarcane and in Louisiana a large proportion of the processors also conduct farming operations. Twenty-eight of the Hawaiian raw sugar companies jointly own the nation's largest cane sugar refinery in addition to having refined sugar produced elsewhere for them on a toll basis, and at least six Louisiana raw sugar manufacturers also produce completely refined sugar. Five of the larger cane sugar refineries are owned by the American Sugar Refining Company, which also produces raw sugar and has beet sugar interests. Three others are owned by the National Sugar Refining Company, and two other large refineries are owned and operated by Cuban raw sugar manufacturers.

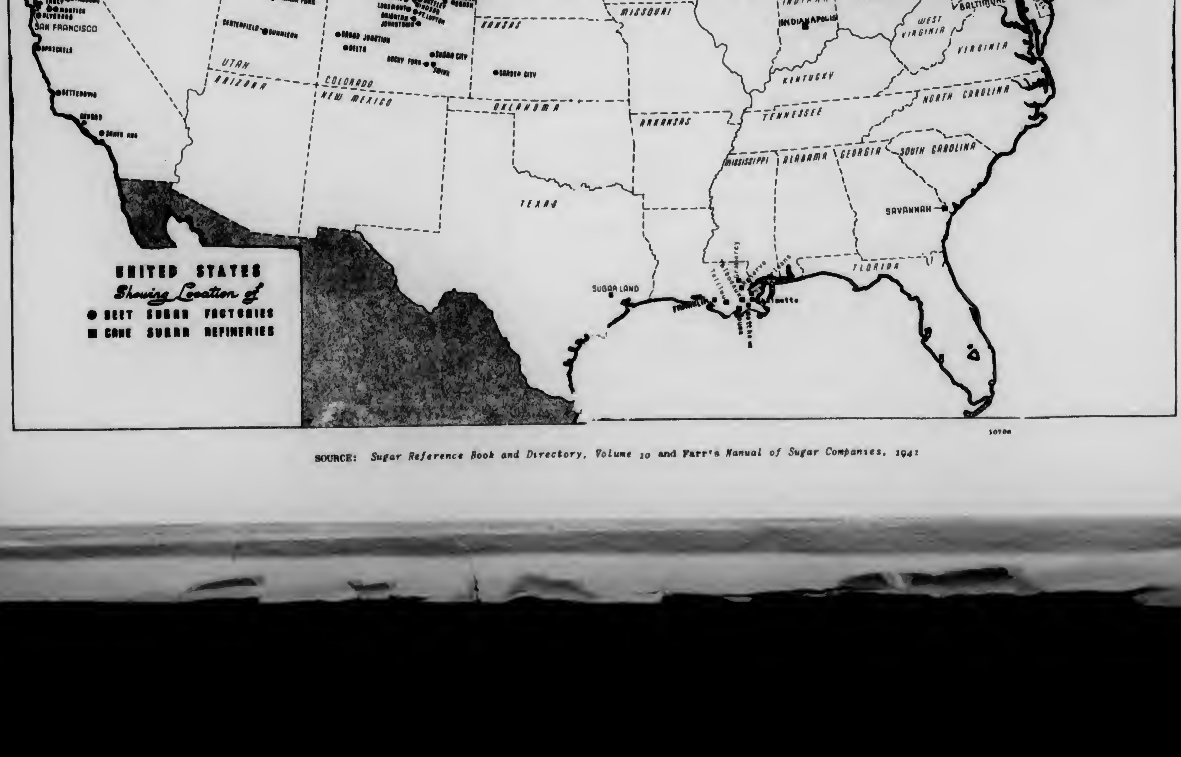
[1/] The Census Bureau reported 65 establishments engaged in 1939 in making maple syrup, sorgo syrup and mixed and blended syrups and molasses, but did not report data for establishments whose production was valued at less than $5,000 or for those whose principal products were sugarcane syrup or maple sugar. Trade directories and information from manufacturers of syrups and molasses indicate that there are approximately 100 establishments in this branch of the industry.

Figure1 LOCATION OF LOUISIANA RAW CANE SUGAR FACTORIES, 1941



SOURCE: Gilmore's *Louisiana Sugar Manual* - 1940-41

Figure 2 LOCATION OF CANE SUGAR REFINERIES AND BEET SUGAR FACTORIES IN THE CONTINENTAL UNITED STATES, 1941.



SOURCE: *Sugar Reference Book and Directory, Volume 10 and Farr's Manual of Sugar Companies, 1941*

Of the beet sugar factories reported by the Census in 1939, seventy-seven were operated by multiple-unit enterprises and only eight by single-unit enterprises; more than 94 percent of the total value of products of the branch were manufactured by the seventy-seven multiple-unit firms. The four largest companies in 1941 owned 54 of the factories, and represented sixty-five percent of the slicing capacity (Table 2).

5. Transportation costs

In the raw cane sugar branch the principal transportation costs are the costs of hauling sugarcane from the fields to the mills. The bulkiness and perishability of sugarcane require that the mills be located very close to the fields with the result that the length of the haul is, for all mills, quite short. The cost of transporting cane during the season 1940-41 was, in Florida, $49.74 per 100 tons of company-grown cane and $30 per 100 tons of purchased cane. 1/ In Louisiana the average cost, based on data from seven mills, of transporting sugarcane to the mills was $40.09 per 100 tons of cane. 2/ In Hawaii the average cost of weighing and hauling sugarcane was, in 1940, $54.76 per 100 tons of cane. 3/

For shipping raw cane sugar to refineries, the Louisiana raw sugar factories are best situated.

In the cane sugar refining branch the principal transportation costs are those of bringing raw sugar from the producing area to the refineries and of shipping refined sugar from the refineries to the consuming areas. The maximum rates allowed by the War Shipping Administration and which are, in effect, the actual rates, from northern Cuba to the various Gulf and Atlantic Coast refining cities are, in cents per one hundred gross pounds of raw sugar, as follows:

Refining city	Shipping cost per 100 pounds of raw sugar 4/
New Orleans	41.76 cents
Galveston and Texas City	43.80 cents
Savannah	53.01 cents
Baltimore, New York area and Philadelphia	55.68 cents
Boston	61.95 cents

1/ United States Sugar Corporation, Tenth Annual Report, p. 44. The transportation costs of company-grown cane include taxes, depreciation, and general administrative costs with respect to the operation of the company-owned transportation system.

2/ New Orleans Bank for Cooperatives, Cooperative Sugar Mills Financed, Season 1940-41, pp. 14 and 28.

3/ Based on data obtained from the 1941 annual reports of Hawaiian Agricultural Company, Honomu Sugar Company, Hutchinson Sugar Plantation Company Pepeekeo Sugar Company, Wailuku Sugar Company, and Waimanolo Sugar Company

4/ Does not include insurance.

Table 2. Concentration of ownership and capacity in the beet sugar branch of the sugar and related products industry, 1941

Beet sugar company	Number of factories a/	Daily Capacity	
		Tons of beets	Percent of total
Amalgamated Sugar Company	6	10,550	7.0
American Crystal Sugar Company	8	15,000	10.0
Central Sugar Company, Inc.	1	1,403	0.9
Franklin County Sugar Company	1	1,500	1.0
Garden City Company	1	1,100	0.7
Great Lakes Sugar Company	3	3,850	2.6
Great Western Sugar Company	22b/	42,100	28.0
Holly Sugar Corporation	12	19,450	13.0
Isabella Sugar Company	1	1,500	1.0
Lake Shore Sugar Company	2	1,850	1.2
Layton Sugar Company	1	1,100	0.7
Menominee Sugar Company	1	910	0.6
Michigan Sugar Company	6	7,500	5.0
Monitor Sugar Company	1	2,200	1.5
National Sugar Manufacturing Company	1	885	0.6
Ohio Sugar Company	1	1,000	0.7
Paulding Sugar Company	1	1,200	0.8
Rock County Sugar Company	1	937	0.6
Southeastern Sugar Company	1	1,200	0.8
Spreckels Sugar Company	3	9,350	6.2
Superior Sugar Refining Company	1	1,300	0.9
Union Sugar Company	1	2,000	1.3
Utah-Idaho Sugar Company	12	21,000	14.0
Waverly Sugar Company	1	500	0.3
West Bay City Sugar Company	1	900	0.6
Total	90	150,285	100.0

Source: Sugar Reference Book and Directory, Volume 10, and Farr and Company, Manual of Sugar Companies, 1941

a/ Some of the factories were not active in the 1941 season.

b/ Includes one beet molasses factory.

The rate on raw sugar from Hawaii to the West Coast refineries is 28.13 cents per hundred pounds when shipped in bulk and 31.25 cents when shipped in bags. Hawaiian raw sugar either to Gulf ports or Atlantic ports is shipped in bags at a rate of 54.68 cents per hundred pounds, or one cent cheaper per hundred pounds than raw sugar from Cuba to New York, Blatimore, or Philadelphia, and more than seven cents cheaper per one hundred pounds than raw sugar from Cuba to Boston.

Refined cane sugar shipped from the various refineries along the Atlantic and Gulf coasts ordinarily compete in certain mid-western states including Indiana, Illinois, Michigan, and Ohio. A study made in 1934 revealed that a transportation advantage was held by the Louisiana refineries to most of the mid-western states. 1/ All-rail freight rates in effect August 1, 1942, indicate that in 1942 no refinery outside Louisiana was able to ship refined sugar by rail into certain of the principal mid-western cities cheaper than Louisiana refineries (Table 3). The rate per one hundred pounds of shipping refined cane sugar by rail from New Orleans to Chicago, for example, was 42 cents, as compared with 42 cents from Savannah or Baltimore, 44 cents from Philadelphia, and 46 cents from New York or Boston. Sugar from New Orleans, however, is shipped to some mid-western points by barge for considerably less than the all-rail rate. Figure 3, based on the data given in the Tariff Commission study referred to above, with certain refinements for borderline cases based on freight rates effective August 1, 1942, depicts the areas within which the respective refining centers have an advantage in transportation costs.

6. Demand and production

Total domestic consumption which accounts for practically all the sugar produced or refined in the United States and its possessions, 2/ inreased rather steadily until 1928-29, after which year it declined slightly because of reduced consumer income and did not again reach the 1928-29 level until 1939-1940 (Figure 4). The cyclical movements in sugar consumption from about 1920 until 1940-41 appear to be closely correlated to the level of consumer income. 3/ An additional factor of importance in

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1/ United States Tariff Commission, Report to the President on Sugar, Report No. 73, 1934.

2/ Exports, including shipments to Hawaii and Puerto Rico, although fairly large prior to, during, and shortly after the first World War have been very small since about 1926; in the year beginning July 1926 exports, including shipments, were about five percent of the apparent United States consumption of sugar, and in 1940-41 were about 3 percent. Between these years they ranged from about one to two percent of apparent consumption. The World Sugar Situation, U. S. Department of Agriculture, June 1942, Table 15.

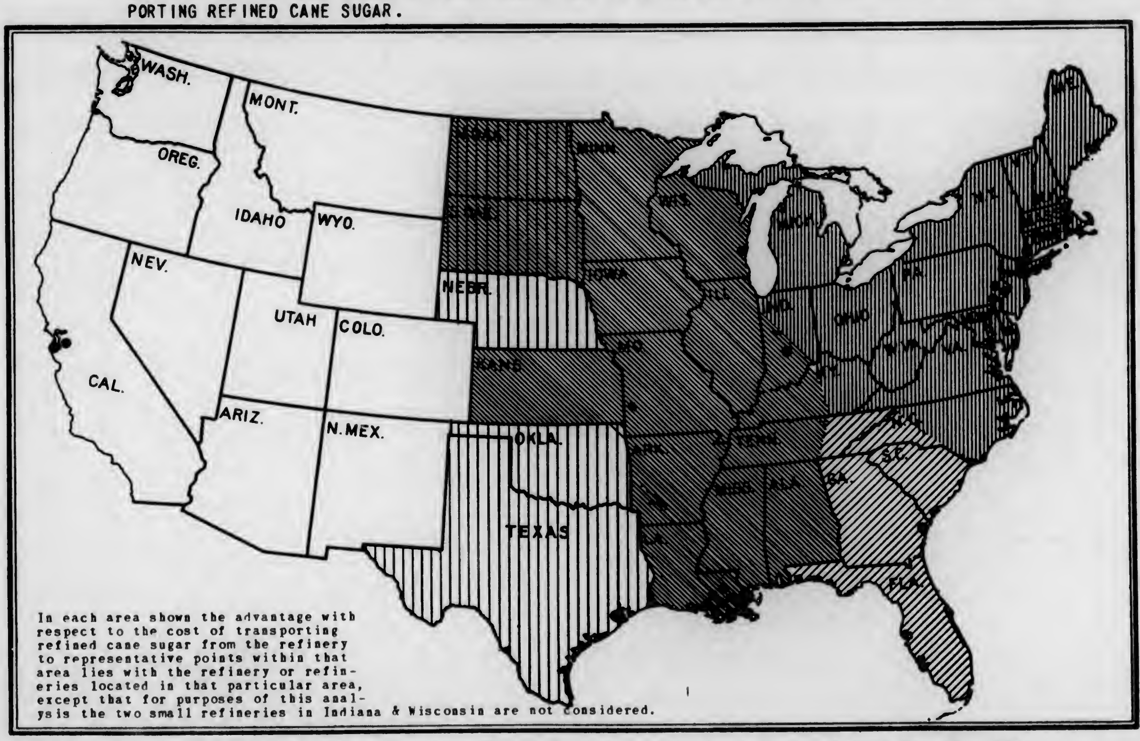
3/ A study of the demand for sugar reveals that minor fluctuations in its price have no significant effect on the quantity of sugar purchased by the consumers as sugar but that there is a close correlation between the level of consumer incomes and the consumption of sugar in the form of such luxury foods as factory-made jams, candy, soft drinks, ice cream, pies, cakes, etc. See Productivity and Employment in Selected Industries: Beet Sugar, Works Progress Administration, National Research Project, also Patterns of Resource Use, National Resources Committee, p.46.

Table 3. Lowest all-rail freight rates per one hundred pounds of refined cane sugar from the principal refining cities to specified destination points, August 1, 1942

Point of origin	Destination point									
	Chicago		Cincinnati		Minneapolis		Pittsburgh		St. Louis	
	Rate (cents per cwt.)	Minimum weight (lbs.)	Rate (cents per cwt.)	Minimum weight (lbs.)	Rate (cents per cwt.)	Minimum weight (lbs.)	Rate (cents per cwt.)	Minimum weight (lbs.)	Rate (cents per cwt.)	Minimum weight (lbs.)
Baltimore	42	80,000	40	60,000	73	60,000	25	40,000	46	80,000
Boston	46	80,000	43	60,000	72	60,000	29	40,000	49	80,000
New Orleans	42	80,000	42	80,000	66	60,000	76	40,000	42	80,000
New York	46	80,000	43	60,000	76	60,000	29	40,000	49	80,000
Philadelphia	44	80,000	41	60,000	74	60,000	27	40,000	47	80,000
Savannah	42	80,000	42	60,000	97	120,000	70	40,000	42	80,000
Sugarland, Texas	50	80,000	84	120,000	66	60,000	93	120,000	47	80,000

Source: United States Treasury Department, Procurement Division.

Figure 3 THE LOCATION OF CANE SUGAR REFINERIES AND THE AREAS IN WHICH EACH SECTION (EXCEPT THE PACIFIC COAST SECTION) OF THE CANE SUGAR REFINING BRANCH HAS AN ADVANTAGE WITH RESPECT TO THE COST OF TRANSPORTING REFINED CANE SUGAR.

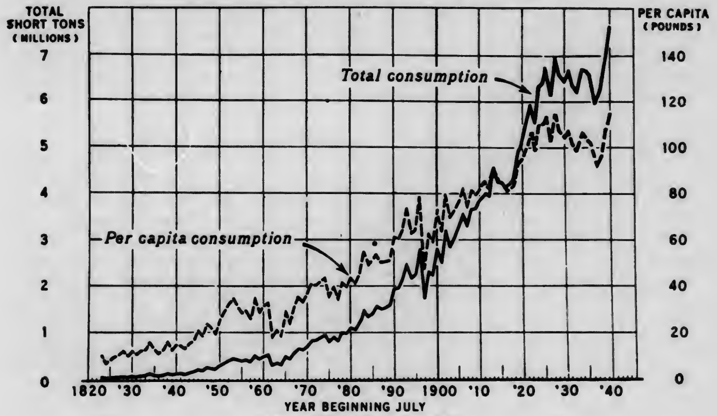


In each area shown the advantage with respect to the cost of transporting refined cane sugar from the refinery to representative points within that area lies with the refinery or refineries located in that particular area, except that for purposes of this analysis the two small refineries in Indiana & Wisconsin are not considered.

SOURCE: United States Tariff Commission, *Report to the President on Sugar*, Report No. 73, 1934, and freight rates effective August 1, 1942.

FIG. 4

SUGAR, RAW CANE AND BEET: TOTAL AND PER CAPITA CONSUMPTION IN CONTINENTAL UNITED STATES, 1823-1940



INCLUDES STOCKS, BEGINNING 1909

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connection with the demand for sugar is the existence of a long-term upward trend in per capita consumption which has resulted in consumption per person being increased from about 80 pounds in 1910 to 100 pounds in 1920 and 115 pounds in 1940.

7. Competition

Except to the extent that substitution results from the sugar rationing program the use of cane or beet sugar as the chief sweetening food is likely to continue, for sugar has no serious competitors. 1/ Edible, non-crystallizable syrups compete with sugar for some purposes, namely in the commercial manufacture of candy, jams, ice cream, and bakery products, and to a minor extent in the home. Corn sugar also competes in certain commercial uses, but an attempt in the 1920's by the corn products industry to make corn sugar more competitive with cane and beet sugar failed; in 1937 and 1939 the quantity of corn sugar produced was, according to the Census of Manufactures, only about one-half the quantity produced in 1927. 2/

Inasmuch as the United States is not normally a syrup or sugar exporting country this industry is not usually faced with the problem of competing in foreign markets in the sale of its products. There is foreign competition in the home market, however, as large quantities of raw cane sugar and small quantities of refined sugar are normally imported. Protection from destructive foreign competition has been provided the domestic producers and processors by a tariff and by the quota system, 3/ temporarily suspended, which, when in operation, limits the quantity of sugar that may be marketed in the United States by foreign as well as domestic producers. The Secretary of Agriculture is instructed by the Sugar Act to so adjust the supply of sugar, by means of adjusting the quotas, as to result in sugar prices sufficient to "maintain the domestic industry as a whole".

1/ Fructose, which is sweeter than sugar (sucrose) obtained from cane or beets and which is found in rather high concentration in dahlia bulbs and Jerusalem artichoke bulbs, is limited to some extent in its commercial possibilities by legal restrictions which confine the commercial application of the word sugar to sucrose.

2/ In 1937 and 1939 the Census of Manufactures reported the production of 467 million pounds of corn sugar; in 1927 it reported 904 million pounds.

3/ Of the protection given the domestic sugar industry Vice-President Wallace in 1938 stated: "In the first place the domestic sugar industry receives an effective protection in the form of prices in excess of the world level of $.90 per 100 pounds raw value from the prevailing tariff on Cuban sugar. In the second place, the effect of the quota system is to raise domestic sugar prices an additional $1.15 per 100 pounds raw value. In the third place, the conditional payments made to sugar beet and sugarcane growers by the Government are equal to another addition in protection of $.60 / increased in 1942 to $.80 / per 100 pounds raw value. The sum of these protective devices is the equivalent of specific tariff duties of $2.65 per 100 pounds of sugar, raw value . . . . This is a considerable amount of protection as compared with the effective duties on other protective products." Letter of March 1, 1938 to United States Senator Robert J. Bulkley.

Competition between the various domestic producing areas, that is, Louisiana, Florida, Hawaii, and the beet sugar area is normally controlled by means of the above-mentioned marketing quotas set by the Sugar Agency of the Agricultural Conservation and Adjustment Administration. Due to the effective supply of sugar being decreased because of shipping difficulties it became necessary to abandon the quota system, but it is presumable that when demand and effective supply are again equal active competition between producing areas will again arise and the quota system will be reinstituted.

Inasmuch as the quota system, when operative, has no direct application to the domestic refining of cane sugar by an individual refinery, 1/ each refinery's operations and profits normally depend upon the quantities of refined sugar each can sell in competition with the others and upon its refining costs. In this connection mention must be made of the apparent ability of the average southern refinery to operate at lower costs than the average northern refinery as shown both by Census data and by a recent cost study of fourteen refineries made by the Tariff Commission for the Office of Price Administration. In 1939, according to the Census Bureau (Table 4), the reported costs 2/ per 100 pounds of refined sugar were $4.13 in Louisiana, $4.58 in New York, $4.26 in Pennsylvania and $4.27 in all other states. The Tariff Commission's study, which related to the calendar year of 1940 and to the third quarter of 1941, revealed that although the north Atlantic 3/ refineries and the west coast refineries were unable to meet their costs at the then ceiling price of $5.45 per 100 pounds the south Atlantic and Gulf refineries were able to make a profit at that price.

That sugar from certain southern refineries is ordinarily sold at lower net prices than that from other refineries is a fact well known to the trade and is substantiated by Census data which reveal that in 1939 the sales value at the refinery was lower for Louisiana refineries than for others, being $4.53 per 100 pounds of refined sugar in Louisiana, $5.04 in New York, $4.78 in Pennsylvania, and $4.65 in all other states. The ability of the southern refineries to sell at lower costs is of significance to the extent that it gives them an advantage over other refineries in competitive markets.

That this advantage has not been unrealized may be indicated by the fact that from 1924-26 to 1941 the annual melt 4/ of refineries located in

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1/ The marketing quotas indirectly affect individual refineries by limiting the amount of raw cane sugar that may be marketed in the United States, thus limiting the total amount of refined cane sugar that may be produced.

2/ Costs reported include only cost of materials, supplies, containers, fuel, purchased electric energy, contract work, wages, and salaries.

3/ North Atlantic refineries include those located in Philadelphia, Boston, and the New York harbor area, south Atlantic include those in Baltimore and Savannah, and the Gulf refineries include those in Louisiana and Texas. See OPA Press Release dated March 31, 1942.

4/ The melt refers to the quantity of raw sugar converted into refined sugar.

Table 4. Cane sugar refineries: Specified costs and value of products per 1000 pounds of refined sugar produced, labor cost per $100 of product, and value of product per dollar of labor cost, by selected states, 1939.

	United States	Louisiana	New York	Pennsylvania	Other States
	(Per 1000 pounds of refined cane sugar)				
Salaries and wages, total	$ 2.59	$ 1.85	$ 3.25	$ 2.73	$ 2.56
Salaried officers	0.03	0.01		0.10	0.01
Manufacturing:					
Salaries	.44	.27	.59	.42	.44
Wages	1.96	1.48	2.39	2.04	1.95
Distribution	0.05	0.02	0.06	0.08	0.04
Construction	.04	.05	.08	.01	.04
Other	.08	.03	.13	.07	.08
Cost of materials, supplies, containers, fuel, purchased electric energy and contract work, total	40.46	39.46	42.54	39.90	40.17
Materials, supplies, containers and contract work	39.90	39.00	41.87	39.26	39.66
Fuel	0.53	0.46	0.66	0.64	0.48
Purchased electric energy	.02	a/	.01	a/	.03
Total census costs b/	43.05	41.31	45.80	42.63	42.73
Value of products c/	47.24	45.28	50.43	47.84	46.50
Labor cost per $100.00 of product d/	5.44	4.06	6.45	5.49	6.35
Value of product per dollar of labor cost	18.38	24.63	15.50	18.21	15.75

Source: Census of Manufactures, 1939.

a/ Less than one-twentieth of 1 cent.

b/ Includes only the cost of materials, supplies, containers, fuel, purchased electric energy, contract work, wages, and salaries. Does not include depreciation, taxes, interest, etc.

c/ Sales value at the refinery of all products manufactured.

d/ Labor cost is the sum of all wages and salaries except the salaries of corporation officers.

Louisiana, Georgia, and Texas increased while the melt of refineries located elsewhere declined. Using the 1924-26 average melt as a base, Figure 5 shows that the melt of all southern refineries had increased 29.6 percent by 1941 1/ while the melt of all other refineries (except the two small inland refineries) had decreased 14.1 percent. The figure also shows that since 1934 the southern refineries have melted a much larger percent of the total quantity of sugar melted in the United States than they did prior to 1934 and the other refineries have melted a smaller percent of the total quantity of sugar melted.

Raw or refined sugar made in Puerto Rico would not be covered by the provisions of a wage order for this industry 2/ but the competitive situation with respect to Puerto Rico is normally stabilized because of the limitations on Puerto Rican shipments by the quota restrictions when in operation. Competition with intrastate establishments is not indicated by available data to be of importance in this industry.

Syrups and molasses, unlike refined sugar, are not standardized as to type, but vary perceptibly in taste, color, etc. In the south sugarcane syrup and domestic molasses are preferred to other types; in the eastern and Pacific states off-shore molasses and maple syrup or cane sugar syrups blended with maple are preferred; and in the midwest sorgo syrup is popular. In most of these areas, it should be noted, the preference is for a type of syrup or molasses produced or blended in that area, thus reducing interregional competition.

8. Profitability

Operating statistics 3/ covering a representative number of Louisiana raw sugar factories reveal that from the crop year 1937 through 1940 the net operating income, excluding payments from the Agricultural Conservation and Adjustment Administration, averaged 5.9 percent of the capital investment for the four year period, ranging from 12.1 percent in 1939 to less than one-half of one percent in 1940 (Table 5).

During the 1941 crop year profit conditions were much improved and the combined net income was 26.6 percent of the capital investment for eight Louisiana mills. 4/ It is likely that the results of the 1942 season will

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1/ The melt of Louisiana refineries increased 38 percent and that of Georgi and Texas refineries increased 13 percent between 1924-26 and 1941.

2/ As defined in Administrative Order No. 162, the industry does not include Puerto Rican establishments; a special industry committee is required by the Act to make recommendations for minimum wages to be paid by Puerto Rican establishments.

3/ Shown in Appendix Table 10.

4/ See Farm Credit Administration, Cooperative Sugar Mills Financed by the New Orleans Bank for Cooperatives, Season 1941-42.

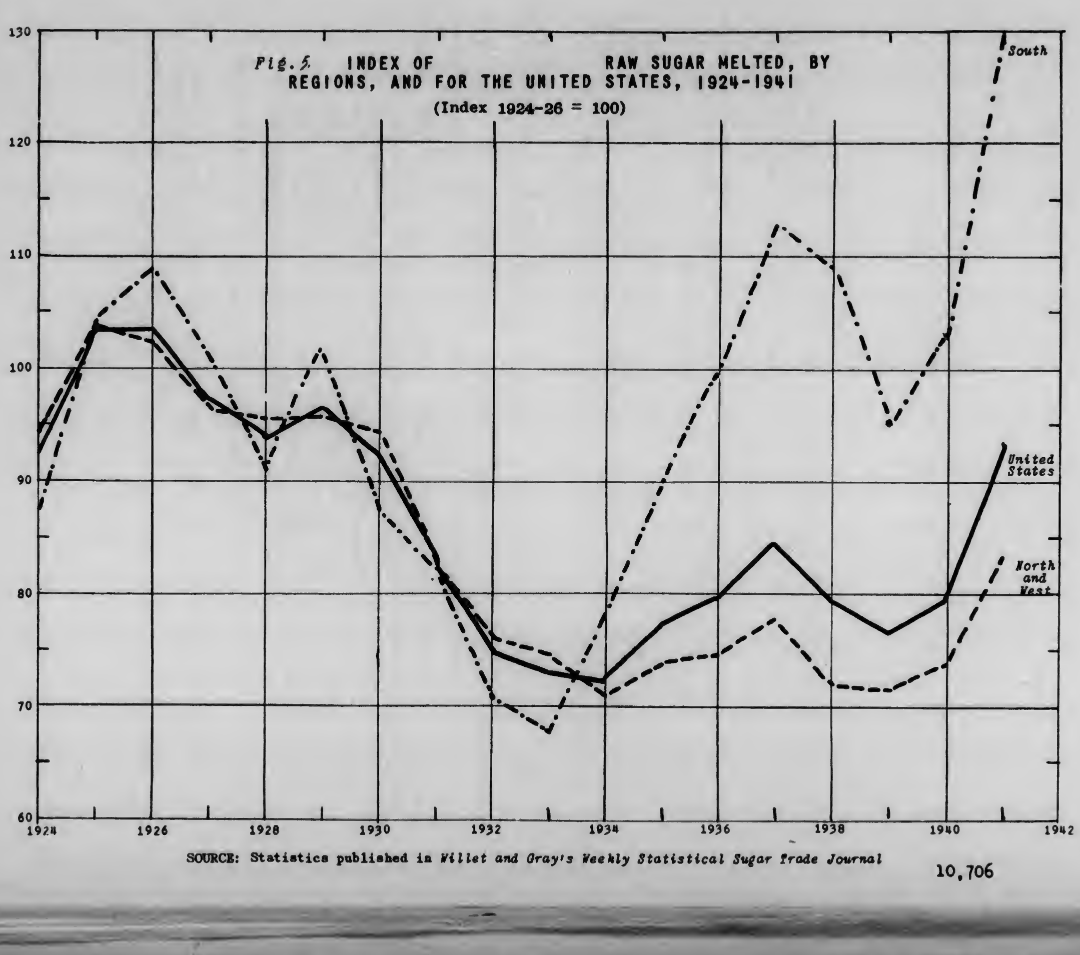

Fig. 5. INDEX OF RAW SUGAR MELTED, BY REGIONS, AND FOR THE UNITED STATES, 1924-1941

(Index 1924-26 = 100)

SOURCE: Statistics published in *Willet and Gray's Weekly Statistical Sugar Trade Journal*

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Table 5. Capital investment, income, and production of selected Louisiana raw cane sugar factories, 1937 to 1941

Year	Number of factories in survey	Capital investment	Net operating income[a]		Production of raw sugar	
			Actual	Percentage of investment	Quantity	Percent of Louisiana production[b]
		dollars	dollars	percent	short tons	percent
1937	30	11,707,590	562,920	4.81	175,401	43.8
1938	32	12,460,736	726,240	5.83	226,260	46.3
1939	42	13,853,994	1,675,128	12.09	269,639	61.5
1940	38	13,337,734	62,130	.47	138,084	58.7
Average 1937-1940	—	12,840,012	756,604	5.89	202,096	51.8
1941	8	1,885,255	501,507	26.60	39,639	12.3

Source: Roy A. Ballinger, Louisiana State University and Louisiana Agricultural Experiment Station, Financial Results of the Operation of Sugar Mills in Louisiana, 1937 and 1938, Costs and Returns of Operating Sugar Mills in Louisiana, Crop Year - 1939, and Preliminary Report on the Costs and Returns of Operating Sugar Mills in Louisiana, Crop Year - 1940 (See Appendix Table 10); and United States Department of Agriculture, Farm Credit Administration, Cooperative Sugar Mills Financed by the New Orleans Bank for Cooperatives, Season 1941-42.

a/ Net income prior to payment of interest.

b/ Louisiana total production of raw cane sugar as reported by the United States Department of Agriculture.

be at least as satisfactory as the 1941 season. The factors accounting for the marked improvement in the 1941 results and 1942 outlook are as follows:

(a) Increase in the volume of cane handled due to the favorable crop conditions and to the removal of the restrictive limitations on acreage in cane.

(b) Removal by the Secretary of Agriculture of the marketing quota allotments assigned to the raw sugar mills.

(c) Increased price of raw cane sugar, resulting in a material increase in gross return to the mills, occasioned by the effect of the war upon the usual source of supply.

(d) Related increase in net income from sale of molasses.

(e) Increase in plant efficiency due to larger volume of cane handled.

Data published in the annual reports of the United States Sugar Corporation, which accounts for more than ninety percent of the raw sugar produced in Florida, reveal that the operating profit of that organization has shown an upward trend since it began operations (Table 6).

The Hawaiian section of the raw cane sugar branch has, similar to the Louisiana and Florida sections, experienced fairly satisfactory conditions, as reflected in the percentage return on investment, shown in Table 7. For the seven-year period from the passage of the Sugar Act through 1940 the yearly net income, including payments made by the Federal Government, has averaged $6,385,000, or 4.86 percent of the investment ranging from a small loss in 1938 to 9.56 percent profit in 1936. From 1938 through 1941 the profits of Hawaiian companies have steadily increased.

The percent profit of four cane sugar refining companies from 1925 to 1941 is shown in Table 8. Although the usefulness of profit data for only four concerns is materially limited when applied to the refining branch as a whole, such data are of some relevance because they serve to indicate the trend of profits and because of the fact that these companies account for a substantial part of the employment and production. This table indicates that profits were higher in 1941 than in any year since 1930, with an upward trend beginning in 1938 and continuing through 1941.

A study by the United States Federal Trade Commission for seven sugar refining companies shows that the combined net income before the deduction of interest on long-term borrowings and income taxes was $6,926,565, or 3.4 percent of the total investment[1] in 1939, with rates for individual corporations ranging from a loss of 2.6 percent to a profit of 8.5 percent. The lowest percent profit for an individual corporation was 2.7 percent, and two corporations reported losses. These seven corporations reported sales in 1939 amounting to 71.5 percent of the total value of products

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[1] Includes long-term borrowed funds.

Table 6. Selected statistics of the United States Sugar Corporation by crop years, 1936 to 1942

Crop year	Tons of cane ground	Yield of 96° sugar per ton of cane ground (percent)	Capital investment	Net income before income tax[a]	Percent return on investment
1936-37	529,156	9.21	7,132,486	1,011,082	14.2
1937-38	582,834	9.13	7,098,322	721,688	10.2
1938-39	805,455	10.66	7,839,838	998,841	12.7
1939-40	663,232	9.82	8,307,446	976,680	11.8
1940-41	873,809	10.50	9,202,053	1,490,805	16.2
1941-42	881,489	9.90	12,909,556	1,716,633	13.3

Source: United States Sugar Corporation, *Annual Reports*, June 30, 1938-1942.

[a] Benefit payments under the Sugar Act of 1937 included in net income.

Table 7. Assets, capital, and income of 24 Hawaiian raw cane sugar companies, 1934 to 1941

Year	Total assets	Capital and surplus[a]	Net Income[b]	Percentage return on investment
	thousand dollars	thousand dollars	thousand dollars	percent
1934	143,852	132,613	5,475	4.13
1935	149,922	139,172	10,750	7.72
1936	143,254	133,677	12,854	9.56
1937	147,629	137,668	9,398	6.83
1938	133,437	117,709	-4,303[c]	-3.66[c]
1939	139,576	129,131	3,840	2.97
1940	140,531	130,305	4,657	3.57
1941	-	130,699	8,407	6.43
Average	142,600	131,372	6,385	4,86

Source: From United States Cane Sugar Refiners' Association, Sugar Economics, Statistics, and Documents (1938) p. 53, (1939 Supplement) p. 342, and unpublished data, all taken from the Honolulu Stock Exchange, Statements (various years).

a/ Total investment, including investment in plantation and other properties.

b/ Includes conditional payments and soil conservation payments from the Agricultural Conservation and Adjustment Administration.

c/ Loss.

Table 8. Assets, capital, and income of four continental cane sugar refining corporations, 1935 to 1941

Year	Capital and surplus (thousand dollars)	Net income (thousand dollars)	Percent profit
1925	136,965	7,175	5.24
1926	140,774	10,737	7.63
1927	138,052	4,621	3.35
1928	144,713	11,532	7.97
1929	148,971	11,314	7.59
1930	150,657	9,061	6.01
1931	150,138	6,961	4.63
1932	150,218	6,408	4.27
1933	141,632	7,341	5.18
1934	141,333	6,592	4.66
1935	139,502	4,594	3.29
1936	140,266	7,273	5.19
1937	140,232	6,277	4.48
1938	135,107	59	0.04
1939	134,162	3,366	2.51
1940	134,016	4,274	3.19
1941	135,997	8,398	6.18

Source: United States Cane Sugar Refiners' Association, Sugar Economics, Statistics and Documents (1938) p. 93, (1939 Supplement) p. 365, and unpublished data. Corporations included are those issuing annual financial reports.

reported for the branch in the 1939 Census. 1/

The relative profitability of refining operations is dependent principally upon the amount of sugar refined and the spread or difference between the price paid by refiners for raw sugar and the price at which they sell the refined sugar made therefrom. Table 9, showing this spread, reveals an upward trend beginning in 1938 and continuing into 1942. The spread in 1942 was higher than at any other year for which the data is presented. It should be remembered, however, that due to the difficulty of obtaining raw sugar the quantity of sugar refined was smaller in 1942 for many refineries than in previous years.

Financial data for five beet sugar companies, shown in Table 10, indicate relatively prosperous conditions for beet sugar manufacturers since the passage of the Sugar Act in 1934. These data show that 1938 was the least profitable year since 1933 and that an upward trend began in 1938 and continued through 1942. These five companies normally account for about 70 percent of the United States production of refined beet sugar, and in 1940-41 owned 59 of the factories in operation.

According to the United States Federal Trade Commission the net income derived from the 1939-40 campaign before provisions for corporate income taxes amounted to $10.749,297 or 9.0 percent of the investment as compared with a return of 5.2 percent for the 1938-39 campaign. The rates for individual corporations for the 1938-39 campaign ranged from a loss of 2.7 percent to a profit of 8.1 percent 2/

9. Effect of the war

The domestic production of raw cane sugar, beet sugar, maple sugar and syrup, and sugarcane or sorgo syrup has been greatly stimulated 3/ by the effect of the war in impeding the movement of sugar from the usual Caribbean sources. As a consequence, while raw sugar is so plentiful in Cuba, Puerto Rico, and the Virgin Islands that it offers a serious warehousing problem there, the refineries which depend on these Caribbean sources of supply have been forced to curtail their operations because of a shortage of ships with

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1/ United States Tariff Commission, Industrial Corporation Reports, Cane Sugar Refining Corporations, December 31, 1940.

2/ United States Tariff Commission, Industrial Corporation Reports, Beet Sugar Refining Corporation, December 10, 1940. Investment includes long-term borrowed funds.

3/ The United States Department of Agriculture, Crop Reporting Board, estimated on July 1, 1942 that the production of sugarcane for syrup was ten percent greater in 1942 than in 1941 and the production of sorgo for syrup was thirty-six percent greater.

Table 9. Refiners spread per pound of raw sugar refined, 1934-42 (cents per pound)

Year	Wholesale refined price, including tax	Raw sugar price, duty paid	Raw sugar price plus excise tax	Refiners spread	
				Simple difference of prices	Adjusted for loss of 0.07 pounds raw sugar a/
1934	4.223	2.997	3.297	.905	.695
1935	4.424	3.102	3.602	.787	.570
1936	4.381	3.499	3.499	.882	.637
1937	4.458	3.535	3.565	.891	.644
1938	4.291	3.002	3.502	.754	.544
1939	4.386	3.000	3.500	.844	.636
1940	4.234	2.844	3.344	.846	.646
1941	4.686c/	3.298	3.798	.853	.622
1942b/	5.450d/	3.230 3.240	3.730 3.740	1.685 1.825	1.459 1.598

Source: United States Cane Sugar Refiners Association, Sugar Economics, Statistics and Documents (1938), p. 31, (1939 Supplement) p. 324 and unpublished data. Based upon reports of companies representing about three-quarters of the continental Cane Sugar Refining branch.

a/ Approximately 107 pounds of raw sugar are required to produce 100 pounds of refined cane sugar.

b/ Although the prices shown for the previous years are actual averages obtained from data by refiners, the 1942 prices are the quoted prices and are somewhat larger than the actual prices.

c/ South Atlantic, Gulf Coast, and western refineries.

d/ North Atlantic and inland refineries.

Table 10. Assets, capital, income, and production of 5 beet sugar companies, 1925-42.

Fiscal year ending a/	Total assets	Capital and surplus	Net income after charges	Percentage return on investment b/	Production of refined beet sugar: Quantity	Production of refined beet sugar: Percent of U.S. total c/
	dollars	dollars	dollars	percent	100 lb. bags	percent
1925	239,270,804	132,799,914	13,186,118	9.92	13,525.835	61.98
1926	169,888,421	127,583,006	4,350,741 d/	3.41	12,047,526	66.80
1927	163,163,546	122,946,947	3,895,792 d/	3.16	13,306,696	74.14
1928	171,677,175	119,373,973	4,414,508	3.69	16,868,417	78.01
1929	162,237,302	124,628,289	8,530,230	6.84	17,347,061	82.50
1930	172,106,623	125,285,035	5,773,027	4.60	17,257,779	84.91
1931	174,783,240	114,734,191	-6,290,761 e/	-5.48 e/	19,479,878	80.64
1932	145,169,435	108,710,514	-4,670,089 e/	-4.29 e/	18,749,363	81.66
1933	144,834,865	109,730,135	2,070,481	1.89	19,316,170	71.47
1934	143,872,013	106,968,731	10,724,605	10.00	24,092,228	73.39
1935	143,656,710	109,594,055	9,322,251	8.50	15,487,973	66.84
1936	138,213,948	112,381,570	11,177,372	9.95	17,468,122	74.08
1937	135,635,185	113,042,162	14,431,205	12.76	18,552,168	71.07
1938	153,938,105	112,351,772	9,705,555	8.63	19,429,497	75.60
1939	156,129,392	112,074,415	5,981,767	5.33	23,709,172	70.48
1940	153,071,842	114,181,608	8,219,678	7.19	22,445,606	68.06
1941	154,652,659	116,255,209	9,064,299	7.80	24,473,814	69.35
1942 f/	139,574,491	108,225,383	9,658,816	8.92	18,811,393	57.30

Source: Compiled by U. S. Cane Sugar Refiners Association from Farr and Co., Manual of Sugar Companies and from individual company reports. Includes the following companies: Amalgamated Sugar Co.; American Crystal Sugar Co.; Great Western Sugar Co.; Holly Sugar Corp.; and Utah-Idaho Sugar Co.

a/ Varies between the companies, but generally around the end of February or March.
b/ Net income after charges divided by capital and surplus.
c/ Total production as reported by the U. S. Beet Sugar Association.
d/ Includes estimate for one company.
e/ Loss.
f/ Data based upon reports of 4 corporations only, as the information concerning the Amalgamated Sugar Co. is not yet available.

which to move the raw sugar to the United States. 1/

In order to insure a fair distribution of the raw sugar in the United States among the refineries the War Production Board established the refiner's allocation committee to allocate to each of the refineries the percentage of the available raw sugar they might use. The Office of Price Administration, for the purpose of maintaining an adequate supply of refined sugar in each area, has established zones within which only certain refiners can sell sugar, and in addition has, with the view to securing an equitable distribution of refined sugar to each consumer, rationed household consumers to one-half pound per week and industrial and institutional users to specified percentages of the quantity used by them in 1941.

The rationing program has reduced the use of sugar in the United States from about 7,500,000 tons raw value per year to approximately 4,000,000 tons. 2/ The producers of beet sugar and of raw cane sugar in Florida, Louisiana, and Hawaii have not had their operations reduced by the forced reduction in consumption, however, as have the cane sugar refiners. In fact the Agriculture Department has removed the production quotas applying to sugarcane and sugar beets and has also removed the marketing quota restrictions formerly applying to the beet sugar and raw cane sugar factories in an attempt to stimulate the production of domestic cane and beet sugar. 3/

Undoubtedly the cane sugar refineries constitute the segment of the industry hit hardest by the war, and as a result of there being insufficient shipping space to provide them with enough raw sugar to keep them operating at capacity the War Production Board is studying the advisability of concentrating all the refining activity in certain refineries and either closing the others or converting them to the manufacture of other products, as for example, alcohol from grain.

1/ According to data published in Willett and Grays Weekly Statistical Sugar Trade Journal of December 3, 1942 the combined melt from January 1 to December 3 of the refineries located in New York Harbor, Boston, Philadelphia, and Baltimore was only 55 percent of their melt during the same period in 1941; the melt of Georgia and Texas refineries was 59 percent of their 1941 melt; the melt of Louisiana refineries was 62 percent of their 1941 melt. California refineries melted 99 percent of the quantity melted in 1941. For all refineries combined the melt was 62 percent of the 1941 melt.

2/ The 1941 total consumption was about 7,500,000 tons raw value of which industrial use was about 38 percent, or 2,280,000 tons. Industrial use in 1942 is reduced to 80 percent of the 1941 level and household use is twenty-six pounds per capita plus certain allowances for canning. This gives an estimated 1942 domestic consumption of about 4,000,000 tons raw value.

3/ That the production of beet sugar and mainland raw cane sugar has been stimulated by the war is indicated by the report of the Crop Reporting Board on November 1, 1942, in which the Board stated that the quantity of raw sugar produced in Louisiana and Florida in the 1942-43 season would be about 562,000 tons as compared with about 419,000 tons in the previous season, and that the quantity of beet sugar produced in 1942-43 would be about 1,917,000 tons, a record high.

Maximum prices for sugar and syrup have been set by the Office of Price Administration, with prices on 96° polarization raw sugar, including duty and freight, of $3.73 per cwt. at U. S. Atlantic ports south of Cape Hatteras and United States Gulf ports, $3.74 at ports north of Cape Hatteras to and including New York, and $3.76 at ports north of New York. Refined cane sugar made in Atlantic refineries from Baltimore south and in Gulf and west coast refineries may be sold by the refineries for not more than $5.45 per cwt. and sugar refined in Atlantic refineries north of Baltimore or in the inland refineries may be sold for not more than $5.60 per cwt. Beet sugar may be sold by the manufacturers for not more than $5.35, as may be turbinado, plantation white, and high-washed cane sugar.

The General Maximum Price Regulations, which apply with certain exceptions to all commodities and services, placed a ceiling price, both wholesale and retail, on syrups in terms of the March level and also froze the retail price of sugar at the March level.

10. Employment

As shown in Table 1, the annual average employment in the industry in 1939 was about 40,000 persons, but the maximum employment is probably upwards of 60,000. 1/

The average annual employment per mainland raw sugar factory is quite small because of the long period during the year in which the mills do not operate, but the employment during the autumn rises sharply. For example, during eight months of 1939 the average employment was less than 35 wage earners per mainland cane sugar factory, yet during November of the same year the average employment rose to 135 wage earners. The average annual employment per Hawaiian sugar factory is much larger than that per mainland factory, 2/ due not so much to the difference in the size of the factories but due instead to the fact that Hawaiian factories normally operate about ten months of the year instead of only three or four as the mainland factories do.

Appendix Tables 5 and 6, which respectively show summary data for mainland and Hawaiian raw cane sugar factories, reveal that from 1927 to 1939 the average annual wage earner employment in all mainland sugar factories combined has increased from 971 to 4,217, and from 1919 to 1939 has increased from 3,143 to 4,371 in Hawaiian factories.

The average annual employment reported by the Census Bureau for all sugar refineries combined was 14,133 manufacturing wage earners and 2,671 other

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1/ The Census Bureau reported the highest monthly wage earner employment in 1939 to be 27,541 in beet sugar factories, 11,298 in mainland raw cane sugar factories, 4,659 in Hawaiian raw cane sugar factories, and 15,315 in cane sugar refineries, a total of 58,315. It is estimated by the Division that at least 2,000 wage earners are employed in the syrup and molasses branch during periods of peak employment.

2/ See Appendix Table 6.

employees. At present, however, due to the reduced operations of the sugar refining branch, the combined employment of all refineries is considerably less than the 1939 average. The employment per refinery is much greater than that of either mainland or Hawaiian raw sugar factories, as twenty-three of the refineries reported by the Census in 1939 had an annual average of more than 101 employees; and thirteen refineries had an average of more than 501 employees. As shown in Table 11, there has been a trend for employment in New York, formerly the most important single state with respect to employment in cane sugar refineries, to decrease, whereas employment in Louisiana cane sugar refineries increased sharply from 1929 to 1939.

All beet sugar factories combined employed 3,631 wage earners in March 1939, and 27,541 in October, and had an annual average of 10,410 wage earners and 1,880 salaried employees. During the campaign the number of wage earners alone averaged about 322 per factory, but due to the long non-operating season the average annual employment was 123 wage earners per factory.

Trade sources combined with Census data indicate there are approximately 100 syrup and molasses factories; 1/ the 49 such factories which replied to the Wage and Hour Division's questionnaire reported 1,054 employees at the seasonal peak of activity, thus providing the basis for an estimate of approximately 2,000 employees in this branch of the industry during the busy season. The annual average would be considerably less than this figure, however, because many of the factories are active for only part of the year, as, for example, those establishments making straight sorgo, sugarcane, or maple syrup and maple sugar. The Division estimates that approximately 1,000 persons, most of whom are employed in the mixing and blending plants, have year-round employment and that about 1,000 more persons obtain employment in the branch during periods of seasonal activity.

1/ See page 7.

Table 11. Cane sugar refineries: Employment by specified states and years, 1929-1939

Year	Wage earners (average for the year)			
	Louisiana	New York	Pennsylvania	Other
1929	2,223	4,352	1,715	5,622
1935	2,785	2,970	2,151	5,926
1937	3,181	2,930	2,008	5,904
1939	3,247	2,650	2,016	6,220

Source: Census of Manufactures

Table 12. Minimum wage rates established by collective bargaining in the five southern cane sugar refineries operating under union agreements a/

Location	Minimum hourly rate	
	Male	Female
	(cents)	(cents)
Reserve, Louisiana	42	40
New Orleans, Louisiana	39	b/
Gramercy, Louisiana	42	40
Chalmette, Louisiana	48	42
Sugar Land, Texas	47½	45

a/ Information from transcript of testimony before the Public Contracts Board April 7, 1942, entitled "The Determination of the Prevailing Minimum Wages in Cane Sugar Refining and Beet Sugar Manufacturing Industries" and from information furnished separately by the United States Cane Sugar Refiners Association and the United Sugar Refining Workers, CIO.

b/ According to information received this refinery employs no women.

C. WAGE STRUCTURE AND POSSIBLE EFFECTS OF INCREASING THE MINIMUM WAGE RATE

1. Wage Structure

With the exception of the refinery at Savannah and seven small refineries, all the refineries in March 1942 were operating under union contracts, and, according to the Bureau of Labor Statistics about eighty-five percent of the sugar refinery workers were working under union agreements. 1/ At each of the refineries under contract the minimum hourly wage was forty cents or more except for one southern refinery in which the minimum was 39 cents (Table 12). In the northern and in the western refineries the union minimum wage rates ranged from 45½ cents to 79 cents.

About sixty percent of the beet sugar workers were reported by the Bureau of Labor Statistics to be covered by union contracts as of October 1941, and forty-six of the beet sugar factories were operating under union agreements. The minimum hourly wage rates agreed upon by collective bargaining ranged from 50 cents in a Colorado factory to 71½ cents in a California factory.

As of October 1941, the wage structure in the industry, including both the unionized and non-unionized segments, is shown in Tables 13 to 17, which reveal, for example, that in mainland raw sugar factories approximately eighty-seven percent of the workers received less than forty cents per hour. These tables also show that the average hourly earnings at the time of the surveys 2/ were 34.3 cents in the mainland raw sugar factories, 41.5 cents in the Hawaiian raw sugar factories, 68.2 cents in the sugar refineries, 61.4 cents in beet sugar factories, and 49.8 cents in syrup and molasses plants.

2. Relation of labor costs to total costs

A close approximation of the relation of labor costs to total costs for 1939 can be made on the basis of the Census data of total wage and salary payments 3/ in relation to the Census data on value of products. 4/ If there

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1/ United States Department of Labor, Bureau of Labor Statistics, Union Agreements and Union Conditions in the Sugar Industry, April 13, 1942.

2/ One survey was conducted for the Public Contracts Division with respect to the earnings and hours in beet sugar factories and cane sugar refineries for the payroll period ending nearest to October 25, 1941, and the other was conducted by the Wage and Hour Division with respect to the earnings an hours for the payroll period ending nearest to (a) October 15, 1941 in thos cane sugar refineries that were not surveyed by the Public Contracts Divisio mainland raw cane sugar factories, sorgo syrup factories, sugar cane syrup factories and syrup and molasses mixers and blenders; (b) March 31, 1942 in maple sugar and maple syrup factories; and (c) May 31, 1942 in Hawaiian raw cane sugar factories.

3/ Excluding the salaries of officers of corporations.

4/ Value of products, as reported by the Census Bureau, means the sales value at the plant of the total output for the year.

Table 13. Mainland raw cane sugar factories: Distribution of employees according to average hourly earnings, October 1941

Employee average hourly earnings (cents)	Number in survey	Simple percentage[a]	Cumulative percentage[a]
Less than 30.0	235	3.3	3.3
Exactly 30.0	4,132	58.3	61.6
30.1 to 30.9	156	2.2	63.8
31.0 to 31.9	397	5.6	69.4
32.0 to 32.9	327	4.6	74.0
33.0 to 33.9	268	3.8	77.8
34.0 to 34.9	104	1.5	79.3
35.0 to 35.9	217	3.1	82.3
36.0 to 36.9	71	1.0	83.3
37.0 to 37.9	172	2.4	85.8
38.0 to 38.9	66	0.9	86.7
39.0 to 39.9	41	0.6	87.3
Exactly 40.0	49	0.7	88.0
40.1 to 44.9	173	2.4	90.4
45.0 to 49.9	186	2.6	93.0
50.0 to 54.9	133	1.9	94.9
55.0 to 59.9	122	1.7	96.6
60.0 to 64.9	48	0.7	97.3
65.0 to 69.9	27	0.4	97.7
70.0 to 74.9	27	0.4	98.1
75.0 to 99.9	95	1.3	99.4
100.0 and over	41	0.6	100.0

Number of employees in survey	7,087
Number of establishments in survey	49
Average hourly earnings (cents)	34.3

Source: See Table 19.

[a] Simple and cumulative percentages were computed separately.

Table 14. Hawaiian raw cane sugar factories: Distribution of employees according to average hourly earnings, May 1942

Employee average hourly earnings (cents)	Number in survey	Simple percentage	Cumulative percentage
30.0 to 30.9	48	1.1	1.1
31.0 to 31.9	17	0.4	1.5
32.0 to 32.9	22	0.5	2.0
33.0 to 33.9	837	19.3	21.3
34.0 to 34.9	386	8.9	30.2
35.0 to 35.9	455	10.5	40.7
36.0 to 36.9	182	4.2	44.9
37.0 to 37.9	273	6.3	51.2
38.0 to 38.9	260	6.0	57.2
39.0 to 39.9	212	4.9	62.1
40.0 or more	1,643	37.9	100.0

Number of employees in survey	4,335
Number of establishments in survey	34
Average hourly earnings (cents)	41.5

Source: See Table 19.

Table 15. Cane sugar refineries: Distribution of employees according to average hourly earnings, October 1941

Employee average hourly earnings (cents)	Number in survey	Simple percentage a/	Cumulative percentage a/
Less than 30.0	7	*	*
Exactly 30.0	841	5.4	5.5
30.1 to 30.9	71	0.5	5.9
31.0 to 31.9	111	0.7	6.7
32.0 to 32.9	152	1.0	7.6
33.0 to 33.9	145	0.9	8.6
34.0 to 34.9	110	0.7	9.3
35.0 to 35.9	97	0.6	9.9
36.0 to 36.9	21	0.1	10.1
37.0 to 37.9	190	1.2	11.3
38.0 to 38.9	67	0.4	11.7
39.0 to 39.9	46	0.3	12.0
Exactly 40.0	614	4.0	16.0
40.1 to 44.9	726	4.7	20.7
45.0 to 49.9	499	3.2	23.9
50.0 to 54.9	564	3.6	27.6
55.0 to 59.9	628	4.1	31.6
60.0 to 64.9	398	2.6	34.2
65.0 to 69.9	1,012	6.5	40.8
70.0 to 74.9	3,277	21.3	62.0
75.0 to 99.9	4,602	29.9	91.7
100.0 and over	1,277	8.3	100.0

Number of employees in survey	15,455
Number of establishments in survey	30
Average Hourly earnings (cents)	68.2

Source: See Table 19.

* Less than one-twentieth of one percent.

a/ Simple and cumulative percentages were computed separately.

Table 16. Beet sugar factories: Distribution of employees according to average hourly earnings, October 1941

Employee average hourly earnings (cents)	Number in survey	Simple percentage a/	Cumulative percentage a/
Less than 30.0	16	0.1	0.1
Exactly 30.0	4	*	0.1
30.1 to 30.9	6	*	0.1
31.0 to 31.9	6	*	0.1
32.0 to 32.9	5	*	0.2
33.0 to 33.9	14	0.1	0.3
34.0 to 34.9	8	*	0.3
35.0 to 35.9	74	0.3	0.6
36.0 to 36.9	25	0.1	0.7
37.0 to 37.9	60	0.3	0.9
38.0 to 38.9	26	0.1	1.0
39.0 to 39.9	51	0.2	1.3
Exactly 40.0	309	1.3	2.6
40.1 to 44.9	641	2.8	5.3
45.0 to 49.9	1717	7.4	12.7
50.0 to 54.9	3043	13.1	25.8
55.0 to 59.9	6416	27.5	53.3
60.0 to 64.9	3587	15.4	68.7
65.0 to 69.9	1724	7.4	76.1
70.0 to 74.9	1806	7.8	83.9
75.0 to 99.9	3330	14.3	98.2
100.0 and over	429	1.8	100.0

Number of employees in survey	23,297
Number of establishments in survey	75
Average hourly earnings (cents)	61.4

Source: See table 19.
* Less than one-twentieth of 1 percent.
a/ Simple and cumulative percentages were computed separately.

Table 17. Syrup and molasses factories: Distribution of employees according to average hourly earnings, 1941-42 season.

Employee average hourly earnings (cents)	Number in survey	Simple percentage a/	Cumulative percentage a/
Less than 30.0	30	2.8	2.8
Exactly 30.0	140	13.3	16.1
30.1 to 30.9	14	1.3	17.5
31.0 to 31.9	3	0.3	17.7
32.0 to 32.9	6	0.6	18.3
33.0 to 33.9	10	0.9	19.3
34.0 to 34.9	7	0.7	19.9
35.0 to 35.9	42	4.0	23.9
36.0 to 36.9	5	0.5	24.4
37.0 to 37.9	35	3.1	27.5
38.0 to 38.9	2	0.2	27.7
39.0 to 39.9	3	0.3	28.0
Exactly 40.0	165	15.6	43.6
40.1 to 44.9	38	3.6	47.2
45.0 to 49.9	151	14.3	61.6
50.0 to 54.9	57	5.4	67.0
55.0 to 59.9	28	2.7	69.6
60.0 to 64.9	39	3.7	73.3
65.0 to 69.9	64	6.1	79.4
70.0 to 74.9	100	9.5	88.9
75.0 to 99.9	83	7.9	96.8
100.0 and over	34	3.2	100.0
Number of employees in survey		1,054	
Number of establishments in survey		49	
Average hourly earnings (cents)		49.8	

Source: See table 12.

a/ Simple and cumulative percentages were computed separately.

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were no profit or loss the relation of labor cost to value of products would equal the relation of labor cost to total costs; if there were a profit the ratio of labor costs to total costs would be smaller than the actual labor cost-total cost ratio, and if there were a loss it would be larger. Therefore relating labor cost to the value of products results, except in cases where the profits or losses are unusually large, in a ratio that is very close to the ratio of labor cost to total costs.

By this analysis (Table 18) labor cost in mainland sugar factories in 1939 is indicated to have been equal to approximately 10.3 percent of the total costs incurred by them 1/ and in Hawaiian factories to have been equal to only 6.3 percent of the total costs. In cane sugar refineries the labor cost in 1939 is indicated to have been approximately 5.7 percent of total costs, in beet sugar factories 12.1 percent, and in syrup and molasses factories 9.2 percent.

3. Direct effects of increasing the minimum

(a) Number and percentage of workers directly affected by various possible minimum wage rates

In the industry as a whole 18.6 percent of the 51,228 workers covered by the surveys 2/, or 9,528 workers, would at the time of the surveys have been directly affected by increasing the minimum hourly wage rate to 36 cents, and 22.3 percent, or 11,321 workers, would have been affected by a 40-cent minimum. It is probable that the number of workers who would now be affected is somewhat smaller, due to wage increases subsequent to the date of the surveys.3/

In the mainland raw sugar factories 6,186 workers, or 87.3 percent of the 7,087 workers surveyed, would have been affected by a 40-cent minimum 4/ in October 1941 and about 82.3 percent would have been affected by a 36-cent minimum (Table 19). In the Hawaiian raw sugar factories 40.7 percent of the workers would have been affected by a 36-cent minimum hourly wage rate in

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1/ This compared with a figure of 13.9 percent obtained from an actual analysis of the financial data of 42 Louisiana sugar mills for the year 1939(see Appendix Table 10). The difference of 3.6 percent is partly accounted for by the fact that the estimate based on Census data did not include as labor cost the salaries paid to officers of corporations whereas the study of 42 Louisiana mills did include such salaries as labor cost, and partly by the fact that the estimate based on Census data included the relatively more efficient Florida section of the branch.

2/ See footnote 2, p. 33.

3/ While complete data concerning the extent of wage increases are not available at this time, reports from the Bureau of Labor Statistics and other sources indicate that a number of establishments have granted such increases. The American Sugar Cane League has reported recently that minimum wages have been increased two to five cents per hour in some raw cane sugar factories during the 1942 season.

4/ Possible wage rates to which specific references are made are used for illustrative purposes only and are not intended to suggest that any particular rate should be recommended.

Table 18. Labor cost, value of products, and percent relation of labor cost to value of products, all branches of the industry, 1939

Industry branch and section	Value of product	Labor cost[a]	Percent labor cost of value of product[b]
All branches, total	$1,096,871,519	$73,288,984	6.7
Beet sugar	134,396,017	16,213,417	12.1
Raw cane sugar	82,777,885	6,541,742	7.9
Mainland	33,526,898	3,463,217	10.3
Hawaiian	49,250,987	3,078,525	6.3
Refined cane sugar	389,869,764	21,204,322	5.4
North	323,196,218	18,498,786	5.7
South	66,675,546	2,705,536	4.1
Syrup and molasses	17,180,204	1,583,439	9.2

Source: Census of Manufactures.

[a] Sum of all wages and salaries except the salaries of corporation officers.

[b] This percentage is used as the estimated percent relation of labor cost to total cost.

Table 19. Percentage of employees in the sugar and related products industry earning less than various possible minimum wage rates, by branch, 1941-42.

Industry branch and section	Number of establishments surveyed	Number of employees surveyed	Average hourly earnings of employees surveyed (cents)	Percentage of employees having hourly earnings of less than				
				32 cents	34 cents	36 cents	38 cents	40 cents
All branches, total	237	51,228	53.4	12.2	15.7	18.6	20.6	22.1
Beet sugar	75	23,297	61.4	0.1	0.2	0.6	0.9	1.3
Raw cane sugar	83	11,422	39.3	43.6	56.4	66.5	72.6	77.7
Mainland	49	7,087	34.3	69.4	77.8	82.3	85.8	87.3
Hawaii	34	4,335	41.5	1.5	21.3	40.7	51.2	62.1
Refined cane sugar	30	15,455	68.2	6.7	8.6	9.9	11.3	12.0
North	18	11,369	77.9	0.1	0.1	0.1	0.1	0.2
South [a]	12	4,086	42.7	25.0	32.2	37.2	42.3	45.0
Syrup and molasses	49	1,054	49.8	17.6	19.2	23.8	27.4	27.9
North	34	684	55.6	2.6	3.5	9.4	13.6	14.0
South [a]	15	370	40.4	45.4	48.1	50.5	53.0	53.5

Source: Data based on the returns to two mail surveys, one conducted for the Public Contracts Division with respect to the earnings and hours in beet sugar factories and cane sugar refineries for the payroll period ending nearest to October 25, 1941, and the second conducted by the Wage & Hour Division with respect to the earnings and hours for the payroll period ending nearest to (a) October 15, 1941 in those cane sugar refineries that were not covered by the Public Contracts survey, mainland raw cane sugar factories, sugarcane syrup factories, sorgo syrup factories, and syrup and molasses mixers and blenders, (b) March 31, 1942 in maple sugar and maple sugar factories, and (c) May 31, 1942 in Hawaiian can sugar factories.

[a] In the tabulation of the data obtained in the wage surveys the classification "South" is the region which includes the States of Texas, Oklahoma, Arkansas, Louisiana, Mississippi, Tennessee, Alabama, Florida, Georgia, South Carolina, North Carolina, Virginia, West Virginia, and Kentucky. "North" includes all other states.

May 1942 and 62.1 percent would have been affected by a 40-cent minimum. A 40-cent minimum would have directly affected 12 percent of the workers in cane sugar refineries and 1.3 percent of the workers in beet sugar factories in October 1941 and 28 percent of the workers in syrup and molasses factories.

(b) Direct effects on the wage bill

For the industry as a whole the wage bill paid during the periods covered by the surveys would have been increased by only 3.7 percent if the hourly rate of pay for all workers who earned less than 40 cents had been raised to that level. The percentage increase in the wage bill varied widely between the various establishments in the industry, however, and in 47 of the 237 surveyed there would have been no increase resulting directly from a 40-cent minimum for the reason that all the workers in those 47 establishments were already receiving more than 40 cents per hour. In the mainland raw sugar factories the wage bill paid in October 1941 would have been directly increased by 12.4 percent if the minimum hourly wage rate had been increased to 36 cents and by 22.3 percent if the minimum had been increased to 40 cents (Table 20). The wage bill of Hawaiian sugar factories would have been increased 6.5 percent by a 40-cent minimum and that of cane sugar refineries would have been increased only 1.5 percent. A 40-cent minimum would have raised the wage bill in the syrup and molasses branch by 4.5 percent and would have increased the wage bill of beet sugar factories by only one-tenth of one percent.

(c) Direct effects on total costs of production

Table 21 shows the percent relation of labor cost to total costs for the industry as a whole and for its branches, and also shows the estimated percentage increase in the total costs that would have resulted directly from establishing, at the time of the surveys, minimum hourly wage rates between 30 and 40 cents per hour. For all branches combined an increase of one-tenth of one percent in total costs would have resulted directly from increasing the hourly minimum to 36 cents, and an increase of two-tenths of one percent would have resulted from a 40-cent minimum. The mainland raw sugar mills would have experienced a direct increase of 2.3 percent in total costs as a result of a 40-cent minimum, or approximately eight cents per cwt. of raw sugar.1/

In cane sugar refineries as a whole, as shown in Table 21, the average increase in total costs resulting directly from a 40-cent minimum would have been only one-tenth of one percent, or about one-half of a cent per cwt. of refined sugar, assuming that the actual average basis price of $4.15 per cwt. of refined sugar received in 1941 by the refiners 2/ was

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1/ Based on the assumption that the 1941-42 season average price of $3.612 per cwt. included no profit or loss but was merely equivalent to total costs. However, as the available information indicates a profit of approximately 59 cents per cwt. during the 1941-42 season the estimate of direct increase in total costs resulting from establishing a 40-cent minimum is somewhat overstated. With respect to the 1942-43 season it should be remembered that the season average price will probably be somewhat higher because of the ceiling price having been increased to $3.73 per cwt.

2/ Wholesale refined price excluding tax of $0.535. (See Table 9 for average annual prices of refined sugar).

Table 20. Estimated percentage increase in the wage bills that would result directly from establishing specified minimum hourly wage rates between 30 and 40 cents in the sugar and related products industry, by branch and section, 1941 - 1942

Industry branch and section	Percentage of establishments surveyed	Percentage of employees surveyed	Average hourly earnings of employees surveyed (cents)	Estimated percentage increase in wage bills that would result directly from establishing specified minimum hourly rates				
				32 cents	34 cents	36 cents	38 cents	40 cents
All branches, total	100.0	100.0	53.4	0.4	0.8	1.6	2.6	3.7
Beet sugar	31.6	45.4	61.4	*	*	*	*	0.1
Raw cane sugar	35.0	22.3	39.3	1.0	2.3	4.5	7.4	10.7
Mainland	20.7	13.8	34.3	3.6	7.8	12.4	17.2	22.3
Hawaii	14.3	8.5	41.5	*	0.3	1.5	3.7	6.5
Refined cane sugar	12.7	30.2	68.2	0.2	0.5	0.8	1.1	1.5
North	7.6	22.2	77.9	*	*	*	*	*
South	5.1	8.0	42.7	1.1	2.7	4.4	6.4	8.6
Syrup and molasses	20.7	2.1	49.8	0.7	1.5	2.3	3.4	4.5
North	14.3	1.3	55.6	0.1	0.2	0.4	0.7	1.2
South	6.4	.8	40.4	2.1	4.3	6.7	9.3	11.9

Source: See Table 19.

* Less than one-twentieth of one percent.

Table 21. Estimated percentage increase in total costs that would result directly from establishing specified minimum hourly wage rates between 30 and 40 cents in the sugar and related products industry, by branch and section a/

Industry branch and section	Estimated percentages of labor costs to total costs b/	Estimated percentage increase in total costs that would result directly from establishing specified minimum hourly wage rates				
		32 cents	34 cents	36 cents	38 cents	40 cents
All branches, total	6.7	*	.1	.1	.2	.2
Beet sugar	12.1	*	*	*	*	*
Raw cane sugar	7.9	.1	.2	.4	.6	.8
Mainland	10.3	.4	.8	1.3	1.8	2.3
Hawaii	6.3	*	*	.1	.3	.4
Refined cane sugar	5.4	*	*	*	.1	.1
North	5.7	*	*	*	*	*
South	4.1	.1	.1	.2	.3	.4
Syrup and molasses	9.2	.1	.1	.2	.3	.4
North	9.2 c/	*	*	*	.1	.1
South	9.2 c/	.2	.4	.6	.9	1.1

Source: See Table 19.

* Less than one-twentieth of one percent.

a/ Estimated by multiplying the estimated percent increase in the wage bill that would result directly from establishing specified minimum hourly wage rates by the percent relation of labor costs to total costs.

b/ Estimated on the basis of 1939 Census of Manufactures data by taking the sum of wages and salaries (except the salaries of corporation officers) as a percent of the value of products. (See table 17)

c/ In the absence of data permitting the percent relation of labor cost to total cost to be estimated separately for northern and southern syrup and molasses establishments the average percent relation based on all syrup and molasses establishments combined is used in this computation for both northern and southern establishments.

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merely equal to the total costs. Southern refiners would have experienced an increase of four-tenths of one percent in total costs, or approximately 1.7 cents per cwt. of refined sugar, 1/ and northern refiners would have had no significant increase.

Beet sugar factories would have experienced no significant increase as a result of a 40-cent minimum and syrup and molasses factories would have had an increase of 1.1 percent in the South and only one-tenth of one percent in the north.

It should, of course, be realized that although the preceding discussion has indicated that certain percentage increases in total costs might occur as a direct result of increasing the minimum wage rates such increases in total costs may actually not occur, and if they do occur may be considerably smaller than indicated. All or part of the increase in wage costs may be offset through increased management efficiencies and greater production economies. 2/ This possibility is especially great with respect to the mainland raw cane sugar factories, beet sugar factories, and maple, sorgo, and sugarcane syrup factories, as the production of these factories, as previously mentioned, has increased, thus making possible the economies accompanying increased production. In addition, increased labor productivity may offset to a large extent any increase in hourly wages. 3/ An increase in minimum rates may also, in many cases, serve effectively to decrease total costs by reducing the amount of labor turn-over.

4. Indirect effects on earnings above the minimum

The foregoing estimates of the direct effects of the different minima on wage bills do not include any allowance for increases which might be granted to workers whose hourly earnings were at the time of the survey equal to or greater than the specified minimum hourly wage rates. Under the Fair Labor Standards Act such increases are not mandatory, but the possible indirect effect of establishing higher minimum hourly wage rates should be recognized. On the other hand, the estimates do not make any allowance, as has been explained previously, for the possible gains in labor productivity and reductions in labor turn-over rates resulting from higher earnings. These and other factors may counteract the increase in the wage bill to such an extent that the unit labor cost may rise less than is indicated by the estimated wage-bill increases.

1/ As in the case of raw cane sugar the assumption that total costs were equal to the average price received by the processors is not accurate in that it results in an overstatement of the actual monetary increase in total costs that would occur.

2/ Appendix Table 11 and Appendix A briefly describe the trend toward modernization and increased efficiency in Louisiana raw cane sugar mills from 1929 to 1939.

3/ Appendix Tables 12 to 15, which show the trend from 1919 to 1939, in the production of sugar and in the cost (as reported by the Census) of production, reveal, for example, that the production of raw cane sugar per worker and per factory has increased sharply and that the unit cost of production has decreased.

The limits and importance of these indirect effects on costs are contingent on several factors, the net influence of which cannot be measured or predicted even in general terms with any degree of certainty. Among these factors, probably the most significant, apart from any special conditions affecting certain firms or segments of an industry, are the general business situation, the degree to which workers' hourly earnings are concentrated just above the proposed minimum wage rate, the bargaining position of labor, the attitude of management, the occupational wage differentials, and the demand for the particular commodity. The indirect effects of a given minimum wage rate are not necessarily immediate, and their magnitude is the net result of the interaction of numerous factors.

These observations are made here to indicate that the actual increases in wage bills following the establishment of higher minimum wage rates may not be identical with the estimates presented in the preceding tables. In addition to those mentioned, other forces may tend to elevate or depress the actual level of earnings. Nonetheless, the preparation of the estimates of the direct effects of the several minimum hourly wage rates which may be recommended and approved serves the useful purpose of pointing out probable general results within the sugar and related products industry in the period subsequent to the adoption of whatever new minimum wage rate may be recommended.

D. DISTRIBUTION OF REFINED SUGAR

According to data published by the Census Bureau relating to the year 1935 most of the refined sugar, both beet and cane, was sold by the manufacturers to wholesalers and jobbers, as shown in table 22. The second most important type of purchaser was the industrial and other large users of sugar. Sales by refined sugar manufacturers directly to retailers constituted a minor portion of their total sales and sales to household consumers were negligible.

The second step in the distributive process, that is, the distribution of sugar by wholesalers and jobbers to retailers and others is shown in table 23, which reveals that the combined sugar sales of wholesalers in the "Groceries Trade" and "Groceries and Foods Trade" was $183,715,000 as compared with $16,491,000 by other wholesalers reporting sugar sales and $169,490,000 by manufacturers sales branches. Part of the sales made by wholesalers or manufacturers sales branches were negotiated by agents and brokers, as their total sales were $568,707,000 of which their sales on behalf of manufacturers were only $328,805,000 (Table 22).

Table 23 shows that of the 5,177 wholesalers classified by the Census of Business as being in the "Beer, Wines and Liquor Trade" there were 30 which reported the sale of sugar in 1935. For these 30 establishments sugar constituted 45.4 percent of the combined sales of all commodities. Of the 1,786 wholesalers classified in the "Groceries (Full Line) Trade" there were 1,769 that sold sugar, and it constituted 11.9 percent of their sales. Sugar constituted 38.7 percent of the sales of the 676 establishments in the "Groceries and Foods (Specialty Lines) Trade" that reported the sale of sugar. Of these 676 establishments there were 126 whose sales were primarily sugar, and whose operations, as well as the operations of those agents and brokers whose sales were primarily sugar, are analyzed in table 24.

The 126 wholesalers whose sales were primarily sugar employed an annual average of 1,154 persons in 1935, had a combined payroll of $1,702,000 and had net sales of $62,382,000, most of which represented sales of sugar. An analysis with respect to the classes of customers reveals that 58.3 percent of the sales of this group of wholesalers were to retailers. There was some competition with manufacturers and brokers as 12.1 percent of the sales were to other wholesalers and 29.4 percent to industrial and other large users. A similar analysis for the 228 agents and brokers whose principal sales in 1935 were sugar is also shown.

Table 22. Net sales a/ of beet sugar and refined cane sugar manufacturers classified by type of purchaser, transfers within the organization, and sales negotiated through agents, brokers, and commission houses

	Beet sugar manufacturers		Refined cane sugar manufacturers		Beet sugar and refined cane sugar manufacturers	
	Amount	Percent	Amount	Percent	Amount	Percent
Total net sales	$111,916,000	100.0	$279,920,000	100.0	$391,836,000	100.0
Sales to industrial and other large users	12,610,000	11.3	53,241,000	19.0	65,851,000	16.8
Sales to wholesalers and jobbers b/	91,071,000	81.4	173,441,000	62.0	264,512,000	67.5
Sales to retailers (including chain stores)	7,747,000	6.9	53,238,000	19.0	60,985,000	15.6
Sales to household consumers	488,000	0.4	c/	c/	488,000	0.1
Transfer to other plants or branches in same organization	8,849,000	____	92,943,000	____	101,792,000	____
Sales negotiated through agents, brokers, and commission houses (included above)	69,091,000	61.7	259,714,000	92.8	328,805,000	83.9

Source: United States Department of Commerce, Bureau of the Census, Census of Business (1935), Distribution of Manufacturers Sales, p. 53.

a/ Net sales do not include sales or transfers to other plants or branches in the same organization.

b/ Includes a small quantity of sales not allocated to usual channels.

c/ None reported.

Table 23. Establishments engaged in the wholesale distribution of sugar, 1935: percent sugar sales to total sales, and actual sugar sales classified by type of operation and kind-of-business group

Type of operation and kind-of-business or trade group	Establishments		Percent sales of sugar to total sales	Reported sales of sugar
	In this classification	Selling sugar		
Full-Service and Limited-Function Wholesalers				
Beer, Wines and Liquors Trade	5,177	30	45.4	$6,392,000
Farm Products--Raw Materials Trade	2,047	10	47.4	5,538,000
Farm Products--Consumer Goods Trade	10,506	92	9.3	2,956,000
General Merchandise Trade	135	25	4.2	1,605,000
Groceries (Full Line) Trade	1,786	1,769	11.9	116,908,000
Groceries and Foods (Specialty Lines) Trade	10,726	676	38.7	66,807,000
Manufacturers Sales Branches (With Stocks)				
Groceries and Foods (Specialty Lines) Trade	2,962	9	86.2	139,988,000
Manufacturers Sales Branches (Without Stocks)				
Groceries and Foods (Specialty Lines) Trade	182	4	99.7	29,502,000
Agents and Brokers				
Farm Products--Consumer Goods Trade	1,360	8	52.4	1,190,000
Groceries and Foods (Specialty Lines) Trade	1,655	408	79.2	568,707,000

Source: Census of Business: 1935, Wholesale Distribution, Volume VIII.

Table 24. Establishments engaging primarily in the wholesale distribution of sugar, 1935: number, employees, payroll, total net sales, and sales to each class of customer

	Full-service and limited-function wholesalers--Groceries and Foods (Specialty lines)	Agents and brokers--Groceries and Foods (Specialty lines)
All establishments whose principal sales were sugar		
Number	126	228
Employees a/	1,154	1,070
Payroll	$1,702,000	$2,619,000
Total net sales	62,382,000	568,227,000
Net sales of establishments reporting distribution by class of customers		
Total of sales analyzed	46,413,000	473,626,000
To industrial and other large users	13,633,000	167,716,000
To wholesalers	5,636,000	259,941,000
To retailers	27,060,000	41,010,000
To household consumers	84,000	b/
To foreign buyers	b/	4,959,000
	Percent	Percent
Percent of sales analyzed	100.0	100.0
To industrial and other large users	29.4	35.4
To wholesalers	12.1	54.8
To retailers	58.3	8.7
To household consumers	0.2	b/
To foreign buyers	b/	1.1

Source: Census of Business: 1935, Wholesale Distribution, Volume VI, pp. 19 and 25, and Volume VII, pp. 47 and 56.

a/ Full-time and part-time, average for year.

b/ None reported.

Appendix table 1. Mainland raw cane sugar factories: Products, by quantity and value, 1939

Products	Amount produced	Value: Dollars	Value: Percent of total
Total	----	33,526,898	100.0
Sugar (tons)	506,043	30,065,761	89.8
Raw	417,314	22,909,107	68.4
Granulated	50,471	4,385,988	13.1
Clarified	38,257	2,770,666	8.3
Syrup and molasses (gallons)	41,393,730	3,144,516	9.3
Syrup	3,729,290	1,054,174	3.1
Blackstrap molasses	31,647,225	1,280,822	3.8
Other molasses	6,017,215	809,520	2.4
Bagasse, for sale as such (tons)	119,960	303,058	.9
Other products a/	--------	13,563	b/

Source: Census of Manufactures, 1939.

a/ Turbinado, second and third sugars, sugar in process, etc.
b/ Less than 0.05 percent.

Appendix table 2. Hawaiian raw cane sugar factories: Value of products, 1939 [a]

Products	Value	
	Dollars	Percent of total
Total	49,250,987	100.0
Sugar	48,535,815	98.6
Raw	45,060,013	91.5
Granulated	3,475,802	7.1
Syrup and molasses (gallons)	582,804	1.2
Syrup	30,780	.1
Blackstrap molasses	297,421	.6
Other	254,603	.5
Bagasse, for sale as such	20,102	[b]
Other products	112,266	0.2

Source: Census of Manufactures, 1939

[a] The quantity of raw cane sugar produced in Hawaii in 1939 was 994,173 tons.

[b] Less than 0.05 percent.

Appendix table 3. Cane sugar refineries: Quantity and value of products, 1939

Products	Amount produced	Value	
		Dollars	Percent of total
Total	------	389,869,764	100.0
Refinery products	-----	388,463,885	99.6
Refined sugar, hard (pounds)	7,780,250,863	356,952,682	91.6
Refined sugar, soft or brown (pounds)	472,765,953	20,251,354	5.2
Sugar syrup	26,096,748	9,475,789	2.4
Invert sugar syrups, of all densities (gallons)	10,317,841	4,456,980	1.1
Other sugar syrups (gallons)	15,778,907	5,018,809	1.3
Refiners' syrup, edible (gallons)	3,428,277	827,915	0.2
Refiners' blackstrap and nonedible syrup	-------	956,145	0.2
Other products and receipts [a]	-------	1,405,879	0.4

Source: Census of Manufactures, 1939.

[a] Principally contract work, and receipts from sale of steam and electric energy and bags.

Appendix table 4. Beet sugar factories: Quantity and value of products, by kind, 1939

Products	Amount produced	Value	
		Dollars	Percent of total
Total	------------	134,396,017a/	100.0
Sugar (pounds)	3,268,883,987	125,823,984	93.7
Granulated	3,245,543,987	125, 407,068	93.4
Unfinished	23,340,000	415,916	0.3
Molasses, sold or transferred to other factories for desugarization (tons)	159,263	1,367,085	1.0
Molasses, other than for desugarization (tons)	89,832	826,313	0.6
Beet pulp (tons)	1,899,111	5,958,047	4.4
Other products, value	---------	431,588	0.3

Source: Census of Manufactures, 1939.

a/ Both the value of "Molasses sold or transferred to other factories for desugarization" and that of the products resulting from desugarization enter into the aggregate, which therefore, includes duplication in the amount of the value of the molasses desugarized within the year.

Appendix Table 5. Mainland raw cane sugar factories: Summary data, 1919 to 1939

Census year	Number of establishments	Wage earners (average for the year) a/	Wages	Cost of materials, supplies, fuel, and purchased electric energy, and contract work b/	Value of products	Value added by manufacture c/
1919	202	6,101	$4,009,369	$44,143,416	$57,741,320	$13,597,904
1921	134	2,724	2,296,207	16,941,432	22,961,221	6,019,789
1923	122	2,820	1,727,893	20,963,005	27,180,783	6,217,778
1925	94	2,066	1,410,964	11,586,359	13,434,999	1,848,640
1927	53	971	639,154	5,830,411	8,009,120	2,178,709
1929	70	2,319	1,642,463	12,222,558	18,325,792	6,103,234
1931	68	2,032	1,332,665	10,007,813	13,981,079	3,973,266
1933	67	2,371	1,227,874	11,593,849	18,233,202	6,639,353
1935	74	2,944	1,530,460	18,297,882	26,280,614	7,982,732
1937	72	4,221	2,379,979	20,722,349	29,151,355	8,429,006
1939	78	4,217	2,573,319	23,017,224	33,526,898	10,509,674

Source: Census of Manufactures

a/ Manufacturing wage earnings only.

b/ Cost of contract work is included in the figures for 1939 and 1937, but not included for prior years.

c/ Value of products less cost of materials, supplies, fuel, purchased electric energy, and contract work.

Appendix Table 6. Hawaiian raw cane sugar factories: Selected data. a/

Distribution of sugar factories according to size as measured by the number of wage earners, the value of products, and the value added by manufacture, 1939

No. of wage earners	No. of factories	Value of products	No. of factories	Value added by manufacture	No. of factories
6-20	1			$ 50,000- 99,999	2
21-50	3	$ 100,000-499,999	5	100,000-199,999	4
51-100	14	500,000-999,999	11	200,000-499,999	15
101-250	13	1,000,000 or over	19	500,000-999,999	9
251-500	4			1,000,000 or more	5

Summary data by Census years, 1909 to 1939

	1939	1919	1909
Establishments	35	43	46
Persons engaged—total	4,800	3,420	2,709
Salaried officers, proprietors and partners, and supervisory employees	240	200	93
Clerical and other non-supervisory employees	189	78	99
Wage earners	4,371	3,143	2,517
Salaries and wages—total	$3,709,901	$2,801,913	$1,047,496
Salaries—total	815,481	774,785	266,216
Officers, proprietors and partners, and supervisory employees	631,376	625,259	146,075
Clerical and other employees	184,105	149,526	120,141
Wages	2,894,420	2,027,128	781,280
Cost of materials, etc.—total	30,482,432	45,897,011	18,542,075
Materials, supplies, and containers	30,003,249	45,104,647	18,414,635
Fuel, electric energy, and contract work	479,183	792,364	127,440
Value of products	49,250,987	80,236,244	35,949,822
Value added by manufacture	18,768,555	34,339,233	17,407,747
Total costs reported by Census b/	34,192,333	48,698,924	19,589,571
Labor cost (exclusive of officers and supervisory employees)	3,078,525	2,176,654	901,421
Percent labor cost of the value of products	6.3	2.7	2.5
Average annual employment per establishment	137	80	59
Tons of raw sugar produced	994,173c/	607,174c/	545,739c/
Labor cost per 1000 pounds	$ 1.55	$ 1.79	$ 0.83
Total Census costs b/ per 1000 pounds	17.20	40.10	17.95

Source: Census of Manufactures, Hawaii.

a/ Data relate solely to sugar factory operations, and hence do not include the agricultural operations.

b/ Includes only the cost of materials, supplies, containers, fuel purchased electric energy, contract work, wages and salaries.

c/ U. S. Department of Agriculture, Agricultural Statistics, 1941.

Appendix Table 7. Cane sugar refineries; Summary data, 1919 to 1939.

Census year	Number of establishments	Wage earners (average for the year) a/	Wages	Cost of materials, supplies, fuel, and purchased electric energy and contract work b/	Value of products	Value added by manufacture c/
1919	20	18,202	$22,710,464	$662,143,981	$730,986,706	$68,842,725
1921	20	15,457	19,463,410	426,600,908	466,602,352	40,001,444
1923	20	15,254	20,044,499	681,880,139	726,241,577	44,361,438
1925	21	14,502	18,955,114	549,896,102	606,632,783	56,736,681
1927	21	13,996	17,707,257	551,594,278	597,445,632	45,851,354
1929	21	13,912	17,850,493	438,399,151	507,389,262	68,990,111
1931	19	11,855	15,547,243	335,932,606	395,302,939	59,370,333
1933	19	11,495	12,237,321	281,535,944	337,075,225	55,539,281
1935	18	13,832	13,913,501	336,176,671 d/	377,214,442 d/	41,037,771
1937	23	14,024	15,973,300	362,652,689 d/	424,630,784 d/	61,978,095
1939	27	14,133	16,196,690	333,876,627 d/	389,869,764 d/	55,993,137

Source: Census of Manufactures, 1939.

a/ Manufacturing wage earners only.

b/ Figures for years prior to 1935 do not include cost of contract work.

c/ Value of products less cost of materials, supplies, fuel, purchased electric energy, and contract work.

d/ Includes excise taxes paid or accrued during 1935, 1937, and 1939.

Appendix Table 8. Beet sugar factories: Summary data, 1919 to 1939.

Census year	Number of establishments	Wage earners (average for the year) a/	Wages	Cost of materials, supplies, fuel, and purchased electric energy	Value of products	Value added by manufacture b/
1919	85	11,781	$15,908,118	$87,029,144	$149,155,892	$62,126,748
1921	92	13,602	22,658,392	121,868,863	139,109,655	17,240,792
1923	84	7,571	10,103,182	70,820,150	118,313,978	47,493,828
1925	89	8,872	12,088,057	87,038,255	132,339,012	45,300,757
1927	79	7,402	9,709,969	79,016,770	104,926,584	25,909,814
1929	82	7,496	10,020,743	70,960,908	108,552,581	37,591,673
1931	67	6,241	7,548,337	62,324,565	85,672,749	23,348,184
1933	84	10,706	10,883,753	76,127,188	127,133,272	51,006,084
1935	77	9,232	9,338,427	71,142,464	95,159,804	24,017,340
1937	87	9,366	11,732,690	68,996,104	107,395,536	38,399,432
1939	85	10,410	12,361,317	84,951,372	134,396,017	49,444,645

Source: Census of Manufactures.

a/ Manufacturing wage earners only.

b/ Value of products less cost of materials, supplies, fuel, and purchased electric energy.

Appendix Table 9. Number of establishments engaged primarily in the manufacture of syrups and molasses, salaries and wages paid, cost of materials, etc., and value of products, 1939 a/

Number of establishments	65
Total salaries and wages	$1,573,439
Salaries and wages, not including wages of manufacturing wage earners	881,622
Wages of manufacturing wage earners	691,817
Cost of materials, supplies, and containers	11,574,712
Cost of sugar consumed	2,461,460
Products, total value	17,180,204
Syrups and molasses	16,278,995 b/
Other products c/	901,209

Source: A special tabulation made by the Census Bureau and based on the Census of Manufactures, 1939.

a/ Data shown represents only those establishments whose products in 1939 were valued at $5000 or more and whose principal products were maple syrup, sorgo syrup, mixed and blended syrups or molasses and blended molasses. Data were not reported by the Census Bureau for those establishments manufacturing, as their principal product, sugarcane syrup or maple sugar.

b/ (1) Edible syrups, mixed or blended, including syrups-and-molasses mixtures; (2) Edible molasses, mixed or blended; (3) Maple syrups; (4) Sorghum and other sweetening syrups and molasses not specified by kind.

c/ Includes salad and cooking vegetable oils; canned vegetables; merchandising scrap and salable refuse; peanut butter; powdered sugar; other food and non-food products.

Appendix table- 10 Costs and returns from the operation of a representative number a/ of raw cane sugar factories in Louisiana, average per mill, per ton of cane ground, per 100 pounds of sugar manufactured, and percentage distribution, 1937-1940.

Items of Cost and Return	Average per mill (dollars)				Average per ton of cane (dollars)				Average per 100 pounds (dollars)				Percentage Distribution			
	1940	1939	1938	1937	1940	1939	1938	1937	1940	1939	1938	1937	1940	1939	1938	1937
General Overhead																
Labor	8,708	12,424	8,552	11,076	.20	.16	.10	.15	.12	.10	.06	.09	3.4	3.2	2.1	2.7
Materials	889	1,404	892	1,788	.02	.02	.01	.02	.01	.01	.01	.02	.4	.4	.2	.5
Taxes	4,121	4,422	5,235	5,234	.09	.07	.06	.07	.06	.03	.04	.05	1.6	1.3	1.3	1.3
Insurance	4,636	5,979	5,427	4,955	.10	.08	.07	.07	.06	.05	.04	.04	1.8	1.6	1.3	1.2
Depreciation	14,228	14,708	13,141	12,072	.32	.20	.16	.16	.20	.11	.09	.10	5.6	3.8	3.2	3.0
Other	2,668	2,061	3,223	4,580	.06	.03	.04	.06	.04	.02	.02	.04	1.0	.5	.8	1.1
Total	35,250	40,998	36,469	39,704	.79	.56	.44	.53	.49	.32	.26	.34	13.8	10.8	8.9	9.8
Procurement of Cane																
Labor	2,297	4,134	3,683	2,907	.05	.08	.04	.04	.03	.03	.03	.02	.9	1.1	.9	.7
Purchase of cane	122,779	206,303	226,172	221,904	2.76	2.78	2.73	2.94	1.69	1.59	1.60	1.90	48.1	54.1	55.4	54.5
Transportation	13,302	24,802	29,068	33,324	.29	.33	.35	.44	.18	.20	.20	.29	5.2	6.5	7.1	8.2
Other	1,159	1,143	b/	b/	.04	.01	b/	b/	.02	.01	b/	b/	.5	.3	b/	b/
Total	139,537	236,382	258,923	258,135	3.14	3.20	3.12	3.42	1.92	1.83	1.83	2.21	54.7	62.0	63.4	63.4
Manufacture of Sugar																
Labor	19,923	26,201	32,616	25,375	.45	.35	.39	.34	.27	.20	.23	.22	7.8	6.8	8.0	6.2
Repairs - labor	9,866	10,836	6,212	6,326	.22	.15	.08	.08	.14	.08	.04	.05	3.9	2.8	1.5	1.6
Fuel	5,135	6,379	8,323	11,216	.12	.08	.10	.15	.07	.05	.06	.09	2.0	1.8	2.1	2.8
Lime, sulphur, etc.	698	1,527	1,296	1,240	.02	.02	.02	.02	.01	.01	.01	.01	.3	.4	.3	.3
Bags and twine	3,900	5,338	5,127	4,827	.09	.07	.06	.06	.05	.04	.04	.04	1.5	1.5	1.3	1.2
Laboratory supplies	456	410	277	1,177	.01	.01	c/	.02	.01	.01	c/	.01	.2	.1	.1	.3
Other supplies	2,106	2,552	3,746	2,300	.05	.03	.05	.03	.03	.02	.03	.02	.8	.6	.9	.5
Repairs - materials	11,010	12,137	11,957	13,183	.24	.16	.14	.17	.15	.09	.08	.11	4.3	3.2	2.9	3.2
Other	1,947	2,859	3,368 d/	5,219 d/	.04	.05	.04	.07	.03	.02	.03	.05	.8	.7	.8	1.3
Total	55,040	68,238	72,922	70,863	1.24	.92	.88	.94	.76	.52	.52	.60	21.6	17.9	17.9	17.4
Selling																
Commission	1,866	4,206	4,669	5,230	.04	.06	.06	.07	.03	.03	.03	.04	.7	1.1	1.2	1.3
Weighing and gauging	261	975	851	851	.01	.01	.01	.01	c/	.01	.01	.01	.1	.2	.2	.2
Storage	672	1,190	b/	b/	.02	.01	b/	b/	.01	.01	b/	b/	.3	.3	b/	b/
Freight and drayage	4,630	11,840	12,686	12,323	.10	.16	.15	.16	.06	.09	.09	.11	1.8	3.1	3.1	3.0
Other	517	988	2,376	324	.01	.01	.03	c/	.01	.01	.02	c/	.2	.3	.6	.1
Total	7,945	19,208	20,582	18,728	.18	.25	.25	.24	.11	.15	.15	.16	3.1	5.0	5.1	4.6
Interest	17,550	16,493	19,227	19,513	.39	.22	.23	.26	.24	.13	.13	.17	6.8	4.3	4.7	4.8
Total Cost	255,322	381,320	408,123	406,942	5.74	5.15	4.92	5.39	3.52	2.95	2.89	3.48	100.0	100.0	100.0	100.0
Miscellaneous Credits	25,227	33,404	26,386	36,204	.57	.45	.32	.48	.35	.26	.19	.31				
Net Cost	230,096	347,915	381,737	370,738	5.17	4.70	4.60	4.91	3.17	2.69	2.70	3.17				
Source of Income																
Raw sugar - 96°	214,181	371,307	385,205	369,989	4.82	5.01	4.64	4.90	2.95	2.87	2.73	3.16	89.5	91.7	93.6	91.1
Other Income																
Other sugars	755	3,730	2,558	7,577	.02	.05	.03	.10	.01	.03	.02	.07	.3	.9	.6	1.9
Syrup	3,217	1,524	2,086	1,734	.07	.02	.03	.02	.04	.01	.02	.01	1.3	.4	.5	.4
Molasses	17,244	23,031	15,933	20,805	.39	.31	.19	.28	.24	.18	.11	.18	7.2	5.7	3.9	5.1
Other	4,011	5,118	5,809	6,088	.09	.07	.07	.08	.06	.04	.04	.05	1.7	1.3	1.4	1.5
Total other income	25,227	33,404	26,386	36,204	.57	.45	.32	.48	.35	.26	.19	.31	10.5	8.3	6.4	8.9
Total Income	239,408	404,711	411,591	406,193	5.39	5.46	4.96	5.38	3.30	3.13	2.92	3.47	100.0	100.0	100.0	100.0
Operating Expenses	237,773	364,827	388,896	387,430	5.35	4.93	4.69	5.13	3.28	2.82	2.76	3.31				
Net operating income	1,635	39,884	22,695	18,964	.04	.53	.27	.25	.02	.31	.16	.16				
Net income after interest	-15,915	23,391	3,468	-749	-.35	.31	.04	-.01	-.22	.18	.03	-.01				
Capital Investment	350,993	329,857	389,398	390,253	7.89	4.46	4.69	5.16	4.83	2.55	2.75	3.34				
Cane ground - actual tons	44,447	74,029	83,012	75,561					.61	.57	.59	.65				
Sugar made - pounds 96°	7,267,582	12,792,355	14,141,279	11,693,450	163.51	174.49	170.35	154.75								

Source: Roy A. Ballinger, Louisiana State University and Louisiana Agricultural Experimental Station, Financial Results of the Operation of Sugar Mills in Louisiana, 1937 and 1938, Costs and Returns of Operating Sugar Mills in Louisiana, Crop Year - 1939, and Preliminary Report on the Costs and Returns of Operating Sugar Mills in Louisiana, Crop Year - 1940.

a/ The data cover 38 factories in 1940, 42 in 1939, 32 in 1938, and 30 in 1937.

b/ Data not shown.

c/ Less than $.005.

d/ Includes $888 for boardinghouses in 1938 and $1,879 for boardinghouses in 1937.

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Appendix A

Modernization of Factory Equipment in 69 Louisiana Raw Sugar Factories Between 1929 and 1939 1/

Since 1934-35 the technological development of the raw sugar industry in Louisiana has proceeded rapidly, with the aid of funds made available by various federal loan agencies, as is shown by the comparison in Appendix Table 11 of factory equipment in 69 identical mills in 1929 and in 1939.

The three smallest of the 69 factories for which data is presented for 1929 had ceased operations by 1938, eight of the 69 were completely rebuilt, and numerous installations of new grinding and cutting machinery were made in others. The length of mill trains had been increased, and additional strength had been gained by a partial replacement of cast iron gearing with steel gearing. Consequently, the 69 factories had shown an increase in the daily grinding capacity of 23,020 tons, a gain of 35 percent over the 1939 capacity. Overhead traveling cranes had been installed in the mill rooms of many plants. Continuous clarifiers had generally replaced the former type of clarifiers, with a resultant reduction in fuel and labor costs, and 20 factories had installed the new Oliver-Campbell rotary vacuum filter. More efficient evaporation of the juice through the widespread conversion of evaporators to triple or quadruple effect evaporators instead of the former double effect type had occasioned a further fuel savings as well as having enabled the factories to evaporate the larger quantities of juice that resulted from the increased grinding rate. A further speed-up in the evaporation of the juice and a still further reduction in the fuel requirements was obtained by the replacement of coil-type vacuum pans with calandria pans. In 1939 there were fifty-one factories with the latter type pan instead of only eight as in 1929.

Crystallizers, which in 1929 were used in only ten of the sixty-nine factories, were used in forty-six in 1939. The 30-inch centrifugals, prevalent in 1929, had in 1939 been largely replaced by machines 40 inches in diameter which were operated at higher speeds. The combined result was a faster and more nearly complete separation of sugar crystals from the molasses with less labor. Additional and more efficient power had been obtained since 1939: the horsepower of boilers had increased by about 25,000 horsepower even though the number of boilers in use decreased from 627 to 559 with the results that fewer people were needed to operate the boiler plant, and still more fuel economies were effected.

Further economies may be had by proper cane preparation and maceration which, it is estimated, will greatly reduce the current loss of about eight percent of the sugar obtainable. An independent expert in the field states that further instrumentation and improvements in the evaporation of the juice will increase efficiency, as will many other changes not mentioned specifically.

1/ Based largely upon Gilmore's Louisiana Sugar Manual, 1940-41, p. iii et seq., *Review of a 10-Year Program of Changes and Improvements in Louisiana Sugar Factories*, by Arthur G. Keller, Louisiana State University.

Appendix Table 11. Louisiana raw cane sugar mills: Comparison of factory equipment in 69 establishments, 1929 and 1939

	1929	1939	Difference
Daily Grinding Rate tons per 24 hours	66,450	89,740	+23,290

Equipment	Number of factories having:		
CANE KNIVES			
Single sets.	38	63	+25
Double Sets.	0	3	+ 3
SHREDDERS	1	14	+13
CRUSHERS			
Single	56	54	- 2
Double	3	4	+ 1
MILLS			
6 roll units	32	16	-16
9 roll units	26	34	+ 8
12 roll units.	12	21	+ 9
15 roll units.	—	1	+ 1
CLARIFIERS.			
Open	47	23	-24
Deming	8	13	+ 5
Dorr, simple	1	13	+12
Dorr, compound	1	6	+ 5
Miscellaneous.	12	14	+ 2
FILTERS			
Plate and Frame.	65	46	-19
Oliver-Campbell.	—	20	+20
EVAPORATORS			
Open	4	4	—
Double Effect.	35	13	-22
Triple Effect.	21	42	+21
Quadruple Effect	8	17	+ 9
CRYSTALLIZERS	10	46	+36
	Total units in factories		
VACUUM PANS			
Coil	140	135	- 5
Calandria.	8	51	+43
CENTRIFUGALS.			
30-in. diameter.	388	247	-141
36-in. diameter.	53	49	- 4
40-in. diameter.	213	355	+142
BOILERS, HORIZONTAL RETURN TUBULAR			
50-250 h. p.	518	411	-107
Over 250 h. p.	2	7	+ 5
BOILERS, SCOTCH MARINE.			
150-250 h. p..	15	16	+ 1
300-400 h. p..	20	12	- 8
BOILERS, WATER TUBE			
125-250 h. p..	43	21	-22
300-500 h. p..	26	57	+31
550-760 h. p..	3	22	+19
800-1,000 h. p..	—	13	+13

Source: Arthur G. Keller (of Louisiana State University), Review of a Ten Year Program of Changes and Improvements in Louisiana Sugar Factories, published in Gilmore's Louisiana Sugar Manual, 1940-41

Appendix Table 12. Raw cane sugar factories: Production per establishment and per wage earner, mainland 1919-1939, and Hawaii 1919 and 1939.

Year	Number of establishments	Number of wage earners (average for year)	Production of raw cane sugar, tons (2000 lbs.		
			Total	Average	
				Per establishment	Per wage earner
Mainland					
1919	202	6,101	225,478	1,116	37.0
1921	134	2,724	260,089	1,941	95.5
1923	122	2,820	169,573	1,390	60.2
1925	94	2,066	116,041	1,234	56.2
1927	53	971	56,492	1,066	58.2
1929	70	2,319	179,839	2,569	77.6
1931	68	2,032	176,371	2,594	86.8
1933	67	2,317	236,940	3,536	102.3
1935	74	2,944	350,982	4,743	119.2
1937	72	4,221	392,321	5,449	92.9
1939	78	4,217	506,042	6,489	120.0
Hawaii					
1919	43	3,143	607,174 a/	14,120	193.2
1939	35	4,371	994,173	28,405	227.4

Source: Census of Manufactures.

a/ For 12 month period. United States Department of Agriculture, Agricultural Statistics.

Appendix table 13. Census costs a/ per pound of raw cane sugar manufactured in the mainland, by Census years, 1919 to 1939, and in Hawaii, 1919 and 1939

Year	Prime costs	Thousand pounds	Census costs per pound (cents)
		Mainland	
1919	49,818,233	450,956	11.05
1921	19,959,119	520,178	3.84
1923	23,443,128	339,146	6.91
1925	13,424,195	232,082	5.78
1927	6,762,275	112,984	5.99
1929	14,324,537	359,678	3.98
1931	b/	352,742	b/
1933	13,171,723	473,880	2.78
1935	20,556,095	701,964	2.93
1937	23,930,870	784,642	3.05
1939	26,748,463	1,012,084	2.64
		Hawaii	
1919	48,897,011	1,214,348 c/	4.02
1939	34,192,333	1,988,346	2.08

Source: Census of Manufactures.

a/ Census costs include all wages and salaries, and the cost of materials, supplies, containers, fuel, and purchased electric energy.

b/ Data not available.

c/ United States Department of Agriculture, Agricultural Statistics, 1941.

Appendix Table 14. Estimated labor costs a/ per 1000 pounds of sugar produced in beet sugar factories, mainland raw cane sugar factories and refineries, 1919 to 1939.

Year	Beet sugar factories			Mainland raw cane sugar factories			Cane sugar refineries		
	1000 pounds of refined sugar	Labor cost	Labor cost per 1000 pounds of refined sugar	1000 pounds b/ of raw sugar	Labor cost	Labor costs per 1000 pounds of raw sugar	1000 pounds c/ of refined sugar	Labor cost	Labor costs per 1000 pounds of refined sugar
1919	1,443,818	$15,908,118	$11.02	450,956	$4,009,369	$8.89	7,042,906	$22,710,464	$3.22
1921	2,059,784	22,658,392	11.00	520,178	2,296,207	4.41	7,540,326	19,463,410	2.58
1923	1,508,918	10,103,182	6.70	339,146	1,727,893	5.09	8,858,256	20,044,499	2.26
1925	2,165,684	12,088,057	5.58	232,082	1,410,964	6.08	10,823,434	18,955,114	1.75
1927	1,798,792	9,709,969	5.40	112,984	639,154	5.66	10,256,164	17,707,257	1.73
1929	2,172,110	12,712,252	5.85	359,678	1,991,032	5.54	10,230,616	21,810,472	2.13
1931	2,330,054	7,548,337	3.24	352,742	1,332,665	3.78	8,859,598	15,547,243	1.75
1933	3,272,924	13,057,388	3.99	473,880	1,577,852	3.33	7,876,936	15,140,727	1.92
1935	2,372,896	12,255,429	5.16	701,964	2,028,053	2.89	8,419,932	17,010,897	2.02
1937	2,592,420	14,957,609	5.76	784,642	2,920,215	3.72	9,031,164	19,779,263	2.19
1939	3,268,884	16,213,417	4.96	1,012,084	3,463,217	3.42	8,253,816	21,204,322	2.57

Source: Census of Manufactures.

a/ Labor costs from 1914 to 1927 and in 1931 include wages only; in 1929 and from 1933 to 1939 labor costs include all wages and salaries except the salaries of officers of corporations.

b/ Includes granulated and clarified sugar produced in raw cane sugar factories.

c/ Hard and soft or brown (all grades).

Appendix Table 15. Cane sugar refineries: Indexes of production, employment, man-hours, productivity, pay rolls, and unit labor costs, 1919 to 1941 (1929 = 100)

Year	Production	Employment	Man-Hours	Output per		Pay rolls	Unit labor cost
				Wage earner	Man-hour		
1919	82.2	131.3	129.3	62.6	63.6	127.2	154.7
1920	85.2	124.1	123.7	68.7	68.9	145.0	170.2
1921	73.7	111.9	112.7	65.9	65.4	109.0	147.9
1922	105.9	130.0	127.1	81.5	83.3	121.0	114.3
1923	86.6	109.7	104.0	78.9	83.3	112.3	129.7
1924	93.9	104.1	99.6	90.2	94.3	109.9	117.0
1925	105.8	104.3	100.6	101.4	105.2	106.2	100.4
1926	106.7	100.5	98.0	106.2	108.9	100.2	93.9
1927	100.2	100.6	98.9	99.6	101.3	99.2	99.0
1928	97.7	94.8	94.0	103.1	103.9	95.8	98.1
1929	100.0	100.0	100.0	100.0	100.0	100.0	100.0
1930	98.3	97.9	96.1	100.4	102.3	98.1	99.8
1931	86.6	85.2	86.5	101.6	100.1	87.1	100.6
1932	78.5	78.4	73.5	100.1	106.8	72.7	92.6
1933	77.0	82.6	64.2	93.2	119.9	68.6	89.1
1934	76.9	96.2	60.1	79.9	128.0	73.0	94.9
1935	82.3	99.4	62.0	82.8	132.7	77.9	94.7
1936	83.2	100.7	61.7	82.6	134.8	79.1	95.1
1937	88.3	100.8	64.2	87.6	137.5	89.5	101.4
1938	83.3	99.6	65.0	83.6	128.2	88.2	105.9
1939	80.7	101.6	64.4	79.4	125.3	90.7	112.4
1940	82.7	101.6	64.1	81.4	129.0	91.8	111.0
1941	87.0	104.5	69.0	83.3	126.1	102.3	117.5

Source: United States Department of Labor, Bureau of Labor Statistics, Productivity and Unit Labor Costs.

Louisiana raw cane sugar manufacturers: Spread between the price received for sugar and molasses and the price paid for sugarcane, crop years 1937 through 1942.

	Raw sugar produced			Manufacturer's payment to grower		Manufacturer's spread per 100 lbs. of raw sugar produced			
Crop year beginning	Total (100 lbs.)	Per ton of sugarcane (lbs.)	Season's average price of raw sugar at New Orleans per 100 lbs. (dollars) a/	Per ton of sugar cane (dollars)	Per 100 lbs. of raw sugar (dollars) b/	Spread on raw sugar (dollars) b/	Receipts from sale of molasses	Combined spread on raw sugar and molasses (dollars) b/	Total spread received by manufacturers on sugar and molasses l/ (dollars) b/
1937	8,100,000	154	3.19	2.91	1.89	1.30	0.18 c/	1.48	11,988,000
1938	9,820,000	168	2.82	2.65	1.58	1.24	.11 c/	1.35	13,257,000
1939	8,680,000	171	2.91	2.88	1.68	1.23	.18 c/	1.41	12,238,000
1940	4,700,000	164	2.97	2.69	1.64	1.33	.24 c/	1.57	7,379,000
1941	6,509,360 d/	165 d/	3.61	3.67 e/	2.22 e/	1.39	.48 f/	1.87	12,172,503
1942g/	9,500,000	170	3.73 h/	3.83 i/j/	2.25 j/	1.48	.50 k/	1.98	18,810,000

Source: United States Department of Agriculture, The World Sugar Situation, June 1942, except as elsewhere noted.

a/ United States Cane Sugar Refiners Association; seasons average of prices reported weekly by the Louisiana Sugar and Rice Exchange.

b/ Computed from data shown elsewhere in table.

c/ Roy A. Ballinger, Louisiana State University and Louisiana Agricultural Experiment Station, Financial Results of the Operation of Sugar Mills in Louisiana, 1937 and 1938, Costs and Returns of Operating Sugar Mills in Louisiana, Crop Year, 1939, and Preliminary Report on the Costs and Returns of Operating Sugar Mills in Louisiana, Crop Year - 1940.

d/ United States Department of Agriculture, Agricultural Adjustment and Conservation Administration, Recapitulation of Final Manufacturing Reports of Sugarcane Factories - Crop 1941.

e/ Does not include "molasses bonus" of $0.266 per ton of sugarcane (.16 per 100 pounds of raw sugar). Growers receive 50% of the price of molasses in excess of 8 cents per gallon: in the 1941 season the average price of molasses was 16.2 cents per gallon, thus growers received 4.1 cents per gallon, and the yield was 6½ gallons per ton of cane.

f/ Processors retained 12.1 cents per gallon of molasses which, with a yield of 6½ gallons per ton, is equivalent to 78.7 cents per ton of cane or 48 cents per 100 pounds of sugar.

g/ All the basic data for 1942 are from The Sugar Journal, November 1942, p. 5 and are estimates of an authority in the Louisiana sugar industry. The estimated 1942 production shown is smaller than an earlier estimate by Mr. Charles A. Farwell of the American Sugar Cane League.

h/ Ceiling price of raw sugar at New Orleans.

i/ Computed by using the 1942 sugarcane price determination formula, which requires that sugarcane be paid for at the rate of $1.00 per ton of cane for each cent of the price of one pound of 96° raw sugar, and requires an additional payment of 10.5 cents for a rise in price of one-fourth of a cent, or more, above 3.5 cents per pound of raw sugar.

j/ Does not include "molasses bonus" which, estimated on the basis of the ceiling price of 18 cents per gallon, is equal to 5 cents per gallon, 32.5 cents per ton of cane, or 19 cents per 100 pounds of raw sugar

k/ Based on the ceiling price of 18 cents per gallon of blackstrap it is estimated that processors will retain 13 cents per gallon of molasses, which is equivalent to 84.5 cents per ton of cane or 50 cents per 100 pounds of sugar.

l/ Does not include receipts from sale of other items such as syrup, bagasse, etc.

UNITED STATES DEPARTMENT OF LABOR
Wage and Hour and Public Contracts Divisions
Economics Branch

ECONOMIC FACTORS BEARING ON THE ESTABLISHMENT OF MINIMUM WAGES IN THE SUGAR AND RELATED PRODUCTS INDUSTRY

ERRATA

Foreword. In first paragraph, line 12, change "January 5, 1942" to "January 5, 1943".

Page 4. Second paragraph. Change the first sentence to read "The most important in terms of the normal volume of employment and the value of products is the refined cane sugar branch, while the beet sugar branch ranks second with respect to employment, value of products, and value added by manufacture (Table 1)".

Page 5. Table 1. In the column headed "Cost of materials" change "$226,287,960" to "$333,876,627".

Page 19. Change the first sentence of the last paragraph to read "During the 1941 crop year profit conditions were apparently favorable inasmuch as the combined net operating income was 11.8 percent of the capital investment for the eight Louisiana factories for which data are available. (Cf. Table 5)."

Page 21. Table 5. Opposite 1941 change "1,835,255" to "4,938,094", "501,507" to "581,587", and "26.60" to "11.78". These changes are made to secure comparability with the data reported in the table for previous years. The original 1941 figures show, in the capital investment column, only the owners' equity, and, in the net operating income column, only the income available for distribution to the owners (i. e., net profits after payment of taxes), whereas the data for previous years show in those respective columns the value of all assets used in the operation of the mills and the net operating income after payment of taxes but prior to the payment of interest.

Page 25. Table 8. In the title delete "Assets".

Page 27. Table 9. Opposite 1941 delete "c/". Opposite 1942 change "5.450d/" to "5.341c/" and under "5.341c/" insert "5.488d/", change "3.230" to "3.730", "3.240" to "3.740", "3.730" to "4.230", "3.740" to "4.240", "1,685" to "1.076", "1,825" to "1.213", "1.459" to ".815", and "1,598" to ".951".

Page 42. Footnote 1, line 4. Change "59 cents" to "49 cents". The revised figure represents net profit (after payment of taxes), and is based on data for 8 raw cane sugar factories.

Page 44. Table 21. Footnote b/. Change "(see table 17)" to "(see table 18)".

January 4, 1943

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